

1199³/₂

OBSERVATIONS

UPON THE

SHOEING OF HORSES:

TOGETHER WITH

A new Inquiry into the Causes of DISEASES in
the FEET of HORSES.

IN TWO PARTS.

Part I. Upon the Shoeing of Horses.

Part II. Upon the Diseases of the Feet.

By J. CLARK, FARRIER.

K

—cavaſque

Tellurem, et ſolido graviter ſonat ungula cornu.

VIRG.

EDINBURGH:

Printed for J. BALFOUR; and T. CADELL, London,

M,DCC,LXXV.

2-N-0-11-A-V-8-18-0

1. The first part of the document is a list of names and titles, including "The Hon. Mr. Justice" and "The Hon. Mr. Justice".

TO
The RIGHT HONOURABLE

H E N R Y

E A R L of P E M B R O K E.

My LORD,

THE honour your Lordship did me, when in this country, of allowing me to converse with you so freely on the subject of Farriery, encourages me to hope, that you will now permit me to usher into the world, under your patronage and protection, the following treatise upon the shoeing of horses, and the diseases of their feet.

Your Lordship has already been pleased to express your approbation of my first essay on the shoeing of horses; and I would flatter myself, that this my second attempt, upon the diseases of their feet, will not be less acceptable. At the same time, I am under the greatest apprehensions from your Lordship's knowledge of the subject; as the defects

iv DEDICATION.

fects in treating it cannot escape the penetration of so able a judge.

You are truly sensible of the many disadvantages which the art of Farriery still labours under, and have condescended to improve and honour it, by communicating many useful precepts and instructions relating to the management of horses; and you have always discovered a readiness to promote every laudable effort to improve this useful science. I would humbly hope, that the present attempt may, in some measure, tend further to exterminate those prevailing and inveterate prejudices, which are still entertained, not only with regard to the shoeing of horses, but to other circumstances respecting the management of their feet.

Animated, therefore, by your Lordship's example, in endeavouring to reform the many absurd operations daily practised on horses, and encouraged by your favour and protection, I shall always continue to employ

DEDICATION. v

employ my leisure-hours, in cultivating and promoting every thing that may contribute to the health and utility of this noble animal.

I have the honour to be, with the greatest deference,

My Lord,

Your Lordship's

Most obedient,

And very humble servant,

JAMES CLARK.

DEDICATION

employ my leisure hours, in cultivating
and promoting every thing that may con-
tribute to the health and utility of the public
animal.

I have the honor to be with the greatest
deference,

My Lord,

Your Lordship's Obedient Servant

Most obedient

And very humble servant,

JAMES CLARK

1793

Printed by J. G. & J. H. 1793

Printed by J. G. & J. H. 1793

Printed by J. G. & J. H. 1793

P R E F A C E.

THE favourable reception which the first edition of my observations on the shoeing of horses met with, has induced me to fulfil my engagement to the public, by attempting a second edition with many improvements and large additions; and I have added, as immediately connected with the subject, a second part upon the Diseases of the Feet.

So much is now supposed to be known by every practitioner in Farriery, that it may seem presumptuous to offer any thing farther on the subject. But certainly there cannot be a greater obstruction to the progress of any art, than an opinion that no room is left for further improvement. From experience, I am convinced, that not only the operative branch of shoeing horses stands greatly in need of a reformation, but that the practical branches of Farriery, whether surgical

gical or medical, are yet in their infancy, neither of them having hitherto been sufficiently understood, or properly cultivated.

However necessary it has been found to fix iron shoes upon the hoofs of horses, it is certainly contrary to the original design of shoeing them, first to destroy their hoofs by paring, &c. and afterwards to put on the foot a broad strong shoe to protect what remains, or rather to supply what has been taken away. Yet, however absurd this manner of treating the feet of horses may appear, it is well known, that it has been carried to a very great length, and still continues to be thought absolutely necessary.—The destruction of their hoofs, and many other bad consequences arising from it, are every day but too apparent.

In hopes of rendering the operation of shoeing horses less destructive to their feet, I have ventured to offer to the public a few remarks on this subject, which are the result of many years experience. And, if this my
second

second attempt shall meet with that success, which I experienced in my former edition of this treatise, I may afterwards communicate some observations on the diseases of that animal, which I hope will be attended with general utility.

In the following remarks, perspicuity and brevity have been carefully observed: And, in order to render the anatomical description of the foot more plain and easy, a plate is added, in which the bones of the foot, and those immediately connected with them, are represented in different views. The form of the shoe that is commonly used, and that which is recommended here, are also represented, and accurately described.

In this edition I have greatly enlarged my former plan, especially in the anatomical description of the foot. But, at the same time, I have avoided the minutiae of anatomy, as perhaps that would rather tend to perplex than instruct the reader; and have only mentioned in general what will be

B most

most necessary for rightly understanding the subject. I have likewise avoided all hard words and technical terms, in order to render the book more plain and easy. A wrong apprehension of what had been formerly said relating to the not pairing the hoofs, which being taken in too strict a sense, has led many people into the opposite extreme. I have, therefore, been under the necessity of explaining myself more fully upon that head.

In the second part, I have endeavoured to shew, that most of the diseases to which horses feet are liable, are generally brought on by the injudicious method, commonly practised, of shoeing them; together with the unnatural treatment horses hoofs, through prejudice and custom, often meet with when kept in a stable. The observations I have made are, therefore, chiefly calculated for the management of the hoofs of our finest horses, as they are generally most exposed to be injured from shoeing, and from keeping the hoofs too hot and dry. The feet
are

are the basis and support of the body, and upon their soundness depends intirely the value and usefulness of a horse; for a fine horse with crazy feet, is like an elegant structure with a bad foundation, and, on that account, they are equally disposed to tumble to the ground.

The following treatise is more calculated, if I may be allowed the expression, for preventing particular diseases which infest the feet of horses, than curing them; the former, in general, being, in a great measure practicable, by proper care and management, whilst the latter, when once confirmed, baffles all the powers of art to restore the diseased parts to their primitive state, which must, of course, be attended with lameness whilst the horse lives. It must therefore be allowed, that it is of much greater importance to endeavour to prevent those diseases from taking place, and thereby preserving horses sound and active in their feet, by treating them in that manner which nature points out as most proper and necessary, than to risk their
being

being rendered lame by following those opposite practices, at present too prevalent, and which are exceedingly detrimental to the feet, not only by imposing an unnatural shape upon the hoofs, by which the horse is rendered lame, but by opposing and thwarting the natural functions which are necessary to preserve the feet in a sound state. The simple rules dictated by nature, ought on all occasions to be followed and imitated, but never constrained or counteracted. Hence it is, that, from overlooking or neglecting these precepts, the feet of horses are generally found to be the first part that fails.

Some particular authors, in treating upon the diseases of the feet, and likewise many Farriers, &c. have greatly perplexed themselves by enumerating a long catalogue of diseases, to which they alledge the feet of horses are liable; this they do, by confounding the first cause of a disease with the effects it afterwards produces in the parts, accounting them at the same time as distinct diseases;

diseases; for instance, a puncture or prick with a nail in shoeing, will cause an inflammation, and afterwards a discharge of matter, which sometimes breaks out and forms an ulcer on the coronet; when it is healed up, there frequently remains a seam or crack in the hoof. Now the puncture or prick with the nail, is reckoned one disease. The ulcer at the coronet (called a quitter-bone) makes a second. The crack or seam it leaves in the hoof (a false quarter) makes a third; and so of other diseases. From this confused manner of enumerating them, the number is greatly increased, and is said to amount to 32 different diseases. In order, therefore, to avoid this prolixity, and to make these diseases the easier to be understood, I have reduced the whole under the following heads, namely, Accidents and Diseases. The first, comprehends wounds, bruises, punctures, strains. The second, includes the diseases, which are, founders, hoof-bound, corns, running thrushes. Under these different heads are included all the diseases, &c. which I have ever known happen to the feet of horses. La Fosse indeed

deed mentions fractures of the bones ; but, as I never have as yet seen one instance of these, I can say nothing upon that head.

With respect to wounds and other accidents, I have endeavoured to lay down such general, and at the same time such simple, rules for treating them, as may be easily followed, even by those who are but little acquainted with dressing wounds in horses. The materials prescribed are easily procured ; they are simple of themselves, and as effectual for the purpose intended as the most pompous prescriptions or elegant compositions. Therefore, I have purposely avoided burthening the practitioner with a number of receipts for ointments, balsams, or tinctures, as a few select ones, well adapted for the different purposes, will be found to answer all the intentions aimed at in curing wounds, &c. in horses. Farriers enjoy one very great advantage in their patients. Horses, from their simple diet, &c. have their blood and juices generally untainted or corrupted by debauchery or intemperance; their
wounds,

wounds, on that account, are easily and speedily cured when rightly treated ; a regimen when necessary, is easily imposed, implicitly followed on their part, and, if rightly conducted, is of the greatest consequence, not only in healing of wounds, but in curing the diseases of horses in general.

I am well aware, that what I advance in the following treatise, will meet with great opposition from the illiterate and prejudiced. But, from the candid and impartial, I would beg a fair hearing ; and, if the arguments I may use should not be thought sufficiently convincing, I shall appeal to nothing but facts and fair experiment,

C O N T E N T S.

Part I. *Introduction* Pag. 17

C H A P. I.

Description of the Foot.

Sect. I.	<i>The external parts of the Foot</i>	30
II.	<i>The internal parts of the Foot</i>	35
III.	<i>Cartilages</i>	39
IV.	<i>Ligaments</i>	40
V.	<i>Glands</i>	41
VI.	<i>Muscles and Tendons</i>	43
VII.	<i>Blood-Vessels and Nerves</i>	44
VIII.	<i>Remarks</i>	45

C H A P. II.

<i>The common method of Shoeing Horses</i>	48
--	----

C H A P. III.

<i>The proper method of Shoeing Horses</i>	56
--	----

C H A P.

CONTENTS

Part I. Introduction Page 1

CHAPTER I

Description of the Foot

Sec. I.	The external parts of the Foot	20
II.	The internal parts of the Foot	22
III.	Cartilages	39
IV.	Ligaments	40
V.	Muscles	41
VI.	Bones and Tendon	43
VII.	Blood Vessels and Nerves	44
VIII.	Remarks	45

CHAPTER II

The common method of Shaving Horses 43

CHAPTER III

The proper method of Shaving Horses 46

CHAP.



Fig. 12.



Fig. 13.

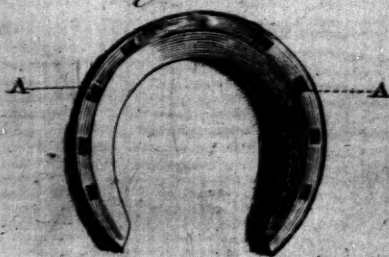


Fig. 10.



Fig. 11.



Fig. 2.



Fig. 1.



Fig. 4.



Fig. 3.



Fig. 6.



Fig. 5.

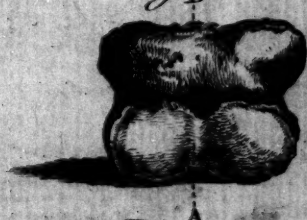


Fig. 8.



Fig. 7.



OBSERVATIONS

UPON THE

SHOEING OF HORSES.

INTRODUCTION.

IT perhaps would be an inquiry attended with some difficulty, to trace the origin of shoeing horses with iron shoes, or to fix the aera and country in which this practice first took place; as it would appear, from what is handed down to us in history, that the ancients, and especially the Greeks, were more solicitous about the ways and means, to harden their horses hoofs, than to defend them, by fixing any extraneous substance upon them. We are told by the ingenious Mr Barringer, who, with

C

great

18 INTRODUCTION.

great labour and industry, has collected a number of curious anecdotes relating to horses and horsemanship, that Xenophon, in his treatise on horsemanship *, recommends a stone pavement for hardening horses' hoofs, and making them tough. 'This sort of pavement,' says he, 'will cool, harden, and improve his feet, merely by his standing upon it, and will procure the same advantage to his hoofs, as he would, if he went upon stoney roads every day.'

Vegetius says likewise †, 'That, the floor of the stable should not be made of soft wood, but of solid hard oak, which will make the horses' hoofs as hard as rocks.' And Virgil, in my motto, tells us, That the horse, in pawing, or tearing up the ground with his hoofs, made it resound by the solidity of the horn.

From these and the like circumstances, it would appear, that, altho' the horse was much

* Book 4. page 236.

† Ibid.

INTRODUCTION. 19.

much used in early times, yet no particular mention is made, for many ages, of any such thing as shoes or coverings for his hoofs. Nevertheless, the want of shoes ought not to appear so extraordinary to us, as there are many nations, even at this period, who do not use shoes to their horses. Of this we have sufficient proof in our own country, particularly in the North and West parts of Scotland, and in Wales; yet their horses perform all manner of work without any detriment to their hoofs, which, from being accustomed to go bare, and rubbing or touching frequently against hard bodies, they (like the hands of a labouring man) acquire a callousness and obduracy, which greatly adds to their firmness.

Mr Barringer informs us likewise, 'That the Kalmuck horses are never shod; nor does it appear,' says he, 'that shoes are necessary; the climate being very dry, and the soil hard, the hoof is likewise so solid and indurated, that nothing can hurt it.'

As

20 INTRODUCTION.

As the works of the aforementioned ingenious author are at present but in a few hands, it will perhaps not be unacceptable, if we select a few passages farther, relating to the ancient method of shoeing horses, from his notes upon Xenophon's treatise on horsemanship*, 'As much is said concerning the best method of preserving the hoofs, and rendering them hard and tough, by the means of a *stone-pavement*, on which the horses were to stand when in the stable; it may not be thought foreign to the subject, to add a more particular account of the ancient method of shoeing horses; if, says he, that term may be used for an occasional covering of their feet. Mention is made in some † ancient authors, of this practice; yet, it is certain, that, if we understand the coverings of the feet in use amongst them to be the same as the *modern shoes*, or like them in any respect, we labour under a palpable mistake. The ancients did not

shoe

† Catullus, Appian. Pliny, Suetonius.

* Chap. 4. page 234.

shoe their horses; that is to say, they did not nail upon their hoofs any pieces of iron, or of other metal, in the form and shape of the *modern horse shoes*; but, when they intended to defend them from any thing that might annoy them in travelling, or the hardness of the ground, they fastened upon their feet, by means of straps and ligatures, a sort of *sandal, stocking*, or what we call *boots* *. These were made of sedges twisted together like a matt, or else of leather; and were sometimes strengthened with plates of iron, and adorned, by rich and ostentatious people, with silver and gold, as in the instances of *Nero* and *Poppaea*. In the collection of the late Baron Sock's *pastes* of antique stones, now in the British Museum, there is one which represents a soldier binding or tying on this sort of shoe, which, being added to other authorities, proves the fact to a demonstration, as the above passage of Xenophon,

* Probably something like our modern hemp shoes, which surrounds the whole hoof, and are fixed at the heels with straps.

22 INTRODUCTION.

‘ Xenophon, and the contrivance of the
‘ stone-pavement, make it clear, that iron
‘ shoes were unknown in these times.

‘ It is remarkable, that the Japanese, at
‘ present, have a similar kind of shoes with
‘ the common sort used by the ancients.
‘ They are twisted of straw, with ropes, like-
‘ wise of straw, hanging down from them,
‘ with which they are fastened about the
‘ horses foot, instead of the European iron
‘ shoes, which are not used in this country.
‘ They are soon worn out in slippery and
‘ stoney roads; and must be often chan-
‘ ged for new. For this purpose, the men
‘ who look after the horses always carry a
‘ competent stock with them, though they
‘ are to be found in every village, and offer-
‘ ed to sale by poor children begging along
‘ the road.

‘ The earliest proof to be met with of iron
‘ shoes *, is the shoe said to have belonged
‘ to

* Barringer, page 235.

INTRODUCTION. 23

' to the horse of *Childeric*, who lived in the
 ' year 481, and is preserved in Montfaucon's
 ' antiquities of France. It perfectly resem-
 ' bles the shoes in use at present *. It is to
 ' be remarked, that it was a custom among
 ' the ancients, which descended to the early
 ' modern ages, to bury their horses with their
 ' owners, and to prefer such as were most
 ' valued and beloved. In Homer, Achilles
 ' sacrifices six to the *manes* of Patroclus. The
 ' grooms, or equerries, or favourite servants,
 ' were also devoted to the same fate. And,
 ' in the year 1710, a tomb was dug up at
 ' *Blois*, in which were found the bones of
 ' an horse and a dog. It may not be im-
 ' pertinent, with reference to this subject,
 ' to relate the following odd particular, be-
 ' longing to the castle of Oakham, in Rut-
 ' land-shire, which is maintained and in
 ' force at this time. This castle was built
 ' soon after the conquest, by *Wakelin de*
 ' *Ferrariis*, who, as he gave six horse shoes
 ' for his arms, obtained the following grant;

* viz.

* In France.

24 INTRODUCTION.

‘ viz. The first time any baron of the realm
 ‘ passes through Oakham, he forfeits a shoe
 ‘ from his horse, unless he chuse to redeem
 ‘ it, which generally is the case, by finding
 ‘ one in its place. The forfeited shoe, or
 ‘ that made in its stead, is fixed, with the
 ‘ nobleman’s name, on the castle gate. Some-
 ‘ times they were made very large, and
 ‘ gilt, in proportion to the sum of money
 ‘ given in lieu of the real shoe, (which is
 ‘ permitted to be done), and great numbers
 ‘ are to be seen on the gate. This *Wakeline*
 ‘ *de Ferrariis* came into England with the
 ‘ Conqueror, and was created by him Earle
 ‘ of Ferrers and Derby.’

Upon the whole, it would appear, that
 the art of shoeing horses with iron
 shoes, was unknown to the ancients; as no
 mention is made of any such practice in
 history, particularly, in the aforementioned
 treatise upon the feeding and management
 of horses, &c. written by Xenophon; for, if
 such practice had been in use, or known,
 he no doubt would have mentioned it, and
 the

the directions he there lays down for hardening horses hoofs, would have been unnecessary. But, in process of time, as the arts and sciences were cultivated, we find them extended to the preservation of horses hoofs, by the invention of shoes or coverings for their feet, made of sedges, as already mentioned; and, as a farther improvement, shoes made of iron were at last invented; which custom has been handed down to us, and is now become absolutely necessary to those horses, who are in the constant use of travelling upon hard turnpike roads and stoney pavement; different soils and climates, requiring more or less of this artificial covering; hence we find, that in different countries, they have adopted different methods of shoeing their horses; but they all agree in paying greater attention to the fore-feet; and indeed it is the custom to shoe them only, as in Prussia, &c. The form of the shoe adopted seems likewise to be peculiar to each country, which, from a strong attachment to their own methods and customs, they always esteem as preferable to any other; for, we find, that

D

when

26 INTRODUCTION.

when foreigners of distinction travel into other countries, they always carry along with them a Farrier of their own nation to shoe their horses. Yet, notwithstanding, whatever difference may arise from the change of soil or climate, horses are found to go equally well, as in their own country. In Persia, they use thin flat shoes; in Turkey, broad thin plates which cover the sole and frog, not unlike the broad barred shoes used with us. In Germany, they use thick, heavy, strong shoes, with three cramps or caukers, one on each heel, and one on the toe of the shoe. In Spain, the shoe-heels are long and thin, without spunges or washes. In France, they use broad flat shoes. And, in Britain, they make use of broad, heavy, concave, or *hollow* shoes, with very broad washes or spunges, together with thick strong heels. But it is not my design, at present, to criticise upon the various methods of shoeing horses in different countries. It is sufficient to observe, that horses, whose hoofs are sound and good, can go upon all kinds of shoes now in use. But, at the same time, it must be

be admitted, that there may be, and indeed are, shoes of a particular construction, which prove more or less hurtful to the feet, and injurious to a horse in his going. Of this kind, is the broad concave shoe, so generally used in Britain. Hence we find, that, in this country, horses are more liable to lameness and diseases in their feet, than any other part of the body, whilst the causes of them are but little inquired into, from a persuasion, that the art of shoeing them is arrived at its utmost perfection, and that no bad consequences can attend a method so universally established. But an inquiry into the method practised in performing this operation, together with the concave form of the shoe, will show from whence most of these maladies arise.

The shoeing of a horse properly, is an operation of greater importance than is generally imagined; for how frequently are our hopes and expectations blasted in the promising appearance of a fine young horse, who, perhaps, is no sooner trained than he

is

28 INTRODUCTION.

is lamed, from the injudicious method of treating his feet in shoeing; whilst, at the same time, the real seat of the complaint, not being understood, is overlooked and neglected, and thus gaining ground, terminates in an incurable lameness.

As it is therefore a matter of great consequence, to preserve our horses sound in the feet, and as so much depends upon having them properly shod, the right performing of this operation certainly demands our particular attention; especially with respect to the fore-feet, whose office it is, to support by far the greater part of the weight of the body, and, on that account, they are more liable to be injured.

In order to set this matter in a clearer point of view, and that it may be the better understood, I shall, *first*, describe the common method of shoeing horses, and the manner of treating their feet, and point out the bad consequences arising from them. *2dly*, I shall explain a more proper method of shoeing horses,

INTRODUCTION. 29

horses, adapted to the anatomical structure of the parts, and more agreeable to the intention and design aimed at in shoeing them. 3dly, I shall prove, from the common practice of Farriers, (in endeavouring to recover bad feet), the truth of what may be advanced; with some general remarks upon the whole subject. But, before we proceed to this, it will be necessary to premise a few things with respect to the anatomical structure of the foot.

CHAP.

C H A P. I.

A general Anatomical Description of the
FOOT of an HORSE.

S E C T. I.

Of the HOOF.

THE external covering of the foot is called the Hoof, and is of an horny substance, without sense or feeling, which serves as a box or covering for the foot, to defend the blood-vessels, nerves, tendons, &c. from external injuries, and to support the weight of the body.

In describing the external parts of the hoof, it may be divided into four parts. 1st, The Crust or Walls of the hoof. 2d, The Sole. 3d, The Frog, or Heel. 4th, The Bars, or Binders.

1st, That circular part into which the nails are fixed in shoeing, called the Crust,
(and

(and by some the Walls of the foot) is of a tough hard substance, thick and strong at the fore-part or toe, but thinner and weaker towards the heels *. At the extremity of each heel, it reflects inward and forward to the point of the frog; there it is termed the bars or binders of the foot. It is this part that suffers most by paring, from a false notion of opening the heels. But, in fact, it has the very contrary effect, which I shall endeavour afterwards to prove.

2d, The Sole fills up the inner and under part of the crust, and is composed of a number of scaly layers, which, when grown too luxuriant, dry, separate, and fall off in scales. The sole is considerably softer and tougher than the crust, and, when much weakened by paring, the internal parts of the foot are liable to bruises from sharp stones, &c. But, if allowed to remain in its natural strength,

* Although the frog is properly the heel of a horse's foot, yet, the extremities of the crust on each side of the frog are called the Heels, and are distinguished by the names of Outside and Inside.

strength, and exposed to hard bodies, it acquires a great degree of hardness, which enables it the better to resist external injuries.

3d, The Frog is of a soft spongy substance, shaped like a dart, and reaches from the posterior extremity of the heel toward the middle of the sole. In the middle of the frog is a longitudinal cleft or opening, by which the heels have a small degree of contraction and expansion at every tread which the horse makes upon the ground.

The frog serves as a cushion for the tendon to rest upon. The sole, the frog, and the bars keep the inferior part of the crust extended at a proper wideness, that the bones, tendons, &c. which are inclosed within it, may be free from compression, and that a free circulation of the blood may be preserved.

The hoofs are a continuation of the skin upon the extremities or feet, are continually

ally growing from their roots at the coronet, towards their basis downwards, from which, any damage or loss they may sustain from wearing, breaking, &c. are soon repaired. They adhere very closely to the foot, and are fastened to the bones by the annular ligament which surrounds them, immediately below the coronet. There are likewise upon the inner surface of the hoof a number of rugae, which are indented, as it were, into the like number of rugae, arising from the tendinous aponeurosis which covers the outer surface of the coffin-bone; by which the hoof is so firmly connected with the foot, that it cannot be separated (in a sound state) but with the greatest violence.

The hoof adheres pretty closely to the bones upon the fore part and sides, as there is nothing intervening, but the tendinous aponeurosis; but it projects backwards from the bones, to a considerable distance toward the heels; and, together with two cartilages to be mentioned hereafter, forms two round

E protube-

protuberances, one on the outside, and another on the inside of the foot, divided by a hollow or channel in the middle, which is continued down almost to the point of the frog. This part of the hoof contains a tough, fatty, cellular substance; hence, it easily admits of contraction and expansion. The hoof is here so very thin, that it diminishes gradually, till it is insensibly lost in the skin. The whole substance of the hoof, but more especially the sole and frog, are of an open porous nature, from which, like other parts of the surface of the body, exudes an insensible perspiration, which, in some feet, is so great, that, when the frog is newly pared, a dew or moisture on its surface is then visible to the naked eye, especially if the foot be held in the light of the sun; hence that rank foetid smell which arises from the hoofs when they are newly pared.

SECT.

S E C T. II.

Of the Internal Parts of the Foot.

THE internal parts of the foot are composed of bones, cartilages, ligaments, muscles, tendons, blood-vessels, and nerves, all of which are closely furrounded or covered on all sides by the hoof, which, in a great measure, resembles the nails on the fingers and toes of the human body.

The bones of the foot are, the Coffin-bone, the Shuttle-bone *, and the one immediately connected with them, the Coronary bone †.

1st, *Coffin-bone*. This bone, from its situation, being immured, or buried, as it were,

* This bone is not taken notice of, either by Snape or Gibson. La Fosse calls it the nut-bone; but, from its shape, which resembles a weaver's shuttle, it certainly should take that name.

† Snape and Gibson, call this, the little pastern bone,

were, within the hoof, is therefore called the coffin-bone; the shape of which is nearly the same with the hoof which surrounds it; being broad, and thin at its basis, growing gradually thicker and stronger towards its upper part, where there is a hollow or cavity that forms, in part, the socket which receives the lower end of the coronary bone, (the shuttle-bone making up the other half, compleats the socket). Its under surface is concave or arched, which gives a free passage for the blood-vessels, &c. under it; and having two projections or processes at each extremity backwards, gives its under part a semilunar form. From the concave shape of the under surface of this bone, the weight or pressure of the body is mostly confined to the circumference or outer edge, which prevents the body from receiving too great, or too sudden a shock, in leaping, vaulting, &c.

This bone is of an open porous nature, full of *foramina* or little holes, for the passage of blood-vessels, of which it receives

a greater number into its substance, than any other bone of its size in the whole body; hence the greater danger from compression and inflammation in these parts.

2d, Shuttle-bone. This bone in its shape, very much resembles a weaver's shuttle, being thick and bunching in the middle, and sharp pointed at each extremity, is of a compact hard substance, and receives a number of blood-vessels which enter on its under part, where there is a longitudinal grove or notch, which receives the posterior edge of the coffin-bone, upon which it is in part supported. Its back part resting upon the flexor tendons, gives that elastic spring to a horse in motion, and which is more or less in proportion to the length of the pasterns.

This bone is placed transversely upon the articulation of the coronary bone with the coffin-bone; by which means, it greatly enlarges the cavity or socket of the latter; hence the coronary bone has a greater surface to move and rest upon. Thus the lower end
of

of the coronary bone being placed into the cavity or socket of the coffin-bone, and the shuttle-bone placed transversely upon the back part of the joint; they are surrounded on all sides by a very strong ligament, which incloses the whole articulation. The external surfaces of these bones which are not included within the cavity of the joint, are covered, in common with all the other bones in the body, by a very thin membrane called the *periosteum*, which adheres very firmly to their substance. Their inner surfaces, within the cavity of the joint, are covered with a very smooth cartilage.

3d, *The Coronary Bone* is so called, from its being surrounded by the coronary ring, or annular ligament at the top of the hoof, is of a hard substance, and receives the great pastern bone into its socket. Its under part, or round head, is received into the socket of the coffin and shuttle bone. This bone, inclining from a perpendicular to a horizontal posture, presses more or less upon the flexor tendons, in proportion to the perpendicular

pendicular attitude of the bones, and the length of the pasterns; hence long pasterned horses are easy in their motions, from the elasticity of the tendons, and the reclining position of the bones.

S E C T. III.

Cartilages.

1st, **B**ESIDES the cartilages or griffles upon the extremities of the bones within the cavity of the joint, (and which are in common to the extremities of all the bones in every articulation), there are two broad and thin cartilages peculiar to each foot, which are joined to the superior and posterior eminence of the coffin-bone, on each side of the joint, and project back toward the heels, in form of wings running horizontally, partly under the hoof, and partly above it, firmly united to the coronet or top of the hoof. These cartilages greatly

greatly strengthen the articulation, and by extending backwards, prevent the hoof, when too much dried or hardened, from compressing the internal parts of the foot, and the heels from contracting; were they not too frequently overpowered by the unequal pressure of broad concave shoes, &c. which force the crust of the heels so much nearer to one another, are there riveted, as it were, and rendered immovable; by which lameness is produced.

S E C T. IV.

Ligaments.

1st, **T**HE ligaments of the coffin-joint arise from the articulated bones near their extremities, and invest or surround the whole articulation, as in a capsule or bag, (including the shuttle-bone), which forms a cavity closed on all sides, so that

that nothing can enter it from without, nor any thing escape from within.

2d, Besides the ligaments above mentioned peculiar to the joint, there arises another from the middle of the coronary bone, which firmly unites the hoof to the bones, and surrounds them immediately below the coronet, which, for the sake of distinction, is called the Annular or Coronary Ligament.

S E C T. V.

Glands.

WITHIN the cavity of the coffin-joint, and indeed in all the joints of the body, are considerable glands, which separate a mucous liniment that serves to lubricate and keep the joints pliable, and which is termed Synovia; this liniment is said to be composed of three different humours which meet in the cavity of the joint, viz. That thin

F

dew

dew or vapour discharged from the small exhaling arteries into the cavities of the joints. 2d, The medullary oil which transudes from the extremities of the bones. 3d, The mucilage separated by the glands. These mixed together, form that lubricating liniment, which being attenuated by the warmth and mutual attrition of the bones, is returned, or absorbed in the same quantity in which it was sent into the joint. In its natural or healthy state, it is mild and inoffensive, while confined within the cavity of the joint. But when the ligament is perforated by any wound or cut, and the air is admitted, together with the inflammation attending wounds in these parts, it acquires a most malignant quality, so as to erode and destroy the very cartilages upon the extremities of the bones, which then grow together, and form what is termed an *anchylosis* *, and, of consequence, produce an incurable lameness. Several instances might be
men-

* An immobility of any joint, on account of the bones growing together.

mentioned, and a number of such diseased bones might be produced, which would incontestibly prove what is here advanced.

S E C T. VI.

Muscles and Tendons.

1st, **T**HE muscles peculiar to the foot, or what are commonly called so, are the superior and inferior. The superior muscle is properly a tendinous *aponeurosis* of the extensor adhering very firmly to the coffin-bone, which it surrounds or covers on all sides; upon the upper and forepart of its surface, are an infinite number of rugae, not unlike the under part of a mushroom, which insculcate or join with the like rugae on the inner surface of the hoof. The inferior muscle, is the expansion of one of the flexor tendons, and covers the under or arched part of the coffin-bone, to which it is very firmly connected.

2^d,

2d, Tendons. The tendons within the hoof are, the extremities of the flexor and extensor muscles, which terminate in very strong tendons, and are inserted into the coffin-bone. The extensor tendon, passing under the annular ligament, is inserted into the fore part of the coffin-bone. The flexors, uniting under one sheath or membrane, are inserted into the back and under part of the coffin-bone; one of which expands in muscular fibres, and covers the concave or arched under surface of the coffin-bone, and which is called the fleshy sole.

S E C T. VII.

Blood-Vessels and Nerves.

THE blood-vessels within the hoof are very numerous, and some of them of a considerable magnitude; more especially two large arteries which run along the outer surface

surface of the coffin-bone on each side, at the notch marked FF in the plate, figure 9. which, from their situation, are very liable to be compressed by the contraction of the horny substance of the hoof. The blood-vessels are generally accompanied with nerves, and are dispersed throughout the whole substance of the foot, and which even penetrate into the inner substance of the hoof; for, upon cutting or paring any part of it, the red blood appears even before the horny substance of the hoof is cut through, and seem always more or less attended with pain.

S E C T. VIII.

Remarks.

FROM what has been said with respect to the internal structure of the foot, it is evident, that the least stricture, pressure, or wound, upon any of these parts which are

are subservient to motion, will, from a natural sympathy, impede the action of the whole, and occasion pain to the animal, which he will shew, by favouring the affected part; hence lameness. And from a consideration of the use and motion of the parts contained within the hoof, we will find, that, in walking, when the leg is extended, and the horse bringing forward his body, the posterior part of the coronary bone is pressed upon the shuttle-bone, the shuttle-bone upon the tendon, the tendon upon the frog, and the frog upon the ground. From the account likewise given of the external structure of the foot, it is evident, that horses can tread the hardest ground without shoes. The only part of the hoof that seems to wear or break away, is the crust; the sole and frog, as we have already observed, by being exposed to hard bodies, acquire a great degree of firmness and hardness, which enables them to resist external injuries; nevertheless, hard turnpike-roads and causeway, have rendered the shoeing of horses absolutely necessary. But no apology

apology whatever can vindicate that pernicious practice of cutting and paring their hoofs to that excess, which is but too frequently done every time a horse is shod, and in order to repair the injury done to the foot, fix on it a strong broad-rimmed shoe, from the very construction of which, together with the loss of its natural defence, horses too frequently are rendered totally useless; the bad effects of which we shall consider in the ensuing chapter.

CHAP.

C H A P. II.

The common Method of SHOEING HORSES, and Paring their Hoofs, explained, with the pernicious Consequences attending it.

IN preparing the foot for the shoe, the frog, the sole, and the bars or binders are pared so much that the blood frequently appears. The shoe by its form (being thick on the inside of the rim, and thin upon the outside *), must of consequence be made concave or hollow on that side which is placed immediately next the foot, in order to prevent its resting upon the sole: The shoes are generally of an immoderate weight and length, and every means is used to prevent the frog from resting upon the ground, by making the shoe-heels thick, broad, and strong, or raising cramps or caukers on them.

From

* See Fig. X. and XI.

From this form of the shoe, and from this method of treating the hoof, the frog is raised to a considerable height above the ground, the heels are deprived of that substance which was provided by nature to keep the crust extended at a proper wideness, and the foot is fixed as it were in a mould.

By the pressure from the weight of the body, and resistance from the outer edges of the shoe, the heels are forced together, and retain that shape impressed upon them, which it is impossible ever afterwards to remove; hence a contraction of the heels, and of course lameness. But farther,

The heels, as has been observed, being forced together, the crust presses upon the processes of the coffin, and extremities of the nut bone: The frog is confined, and raised so far from the ground, that it cannot have that support upon it, which it ought to have: The circulation of the blood is impeded, and a wasting of the frog, and frequently of the whole foot, ensues.

G

Hence

50 COMMON METHOD

Hence proceed all those diseases of the feet, known by the names of Foundred, Hoof-bound, Narrow heels, Running-thrushes, Corns, High soles, &c.

I have likewise frequently observed, from this compression of the internal parts of the foot, a swelling of the legs immediately above the hoof, attended with great pain and inflammation, with a discharge of thin, ichorous, fetid matter: From which symptoms, it is often concluded, that the horse is in a bad habit of body, (or what is termed a grease falling down), and must therefore undergo a course of medicine, &c.

The bad effects of this practice are still more obvious upon the external parts of the hoof. The crust toward the toe, being the only part of the hoof free from compression, enjoys a free circulation of that fluid necessary for its nourishment, and grows broader and longer; from which extraordinary length of toe, the horse stumbles in his going, and cuts his legs: The smaller particles

ticles of sand insinuate themselves between the shoe and the heels, which grind them away, and, thereby, produce lameness. All this is entirely owing to the great spring the heels of the horse must unavoidably have upon the heels of a shoe made in this form,

This concave shoe in time wears thin at the toe, and, yielding to the pressure made upon it, is forced wider, and of consequence breaks off all that part of the crust on the outside of the nails. Instances of this kind daily occur, insomuch, that there hardly remains crust sufficient to fix a shoe upon.

It is generally thought, that the broader a shoe is, and the more it covers the sole and frog, a horse will travel the better. But, as has been formerly remarked, the broader a shoe is of this form, it must be made the more concave; and, of consequence, the contracting power upon the heels must be the greater. It is likewise to be observed, that, by using strong broad-rimmed concave shoes
in

in the summer-season, when the weather is hot and the roads very dry and hard, if a horse is obliged to ride fast, the shoes, by repeated strokes (or friction) against the ground, acquire a great degree of heat, which is communicated to the internal parts of the foot; and, together with the contraction upon the heels occasioned by the form of the shoe, must certainly cause exquisite pain. This is frequently succeeded by a violent inflammation in the internal parts of the hoof, and is the cause of that disease in the feet, so fatal to the very best of our horses, commonly termed a *founder*. This is also the reason why horses, after a journey, or a hard ride, are observed to shift their feet so frequently, and to lie down much.

If we attend further to the convex surface of this shoe, and the convexity of the pavement upon which horses walk, it will then be evident, that it is impossible for them to keep their feet from slipping in this form of shoe, especially upon declivities of streets.

It

It is also a common practice, especially in this place, to turn up the heels of the shoes into what is called Cramps or Caukers, by which means, the weight of the horse is confined to a very narrow surface, viz. the inner round edge of the shoe-rim and the points or caukers of each heel, which soon wear round and blunt; besides, they, for the most part, are made by far too thick and long. The consequence is, that it throws the horse forward upon the toes, and is apt to make him slip and stumble. To this cause we must likewise ascribe the frequent and sudden lameness horses are subject to in the legs, by twisting and straining the ligaments of the joints, tendons, &c.

I do not affirm, that caukers are always hurtful, and ought to be laid aside. On the contrary, I grant, that they, or some such like contrivance, are extremely necessary, and may be used with advantage upon flat shoes where the ground is slippery; but they should be made thinner and sharper than those commonly used, so as to sink into the ground, otherwise

54 COMMON METHOD

otherwise they will rather be hurtful than of any advantage.

The Chinese are said to account a small foot an ornament in their women, and, for that purpose, when young, their feet are confined in small shoes. This no doubt produces the desired effect; but must necessarily be very prejudicial to them in walking, and apt to render them entirely lame.

This practice, however, very much resembles our manner of shoeing horses: For, if we looked upon it as an advantage to them to have long feet, with narrow low heels, and supposing we observed no inconvenience to attend it, or bad consequence to follow from it, we could not possibly use a more effectual means to bring it about, than by following the method already described.

In shoeing a horse, therefore, we should in this, as in every other case, study to follow nature: And certainly that shoe which is made of such a form, as to resemble as
near

near as possible the natural tread and shape of the foot, must be preferable to any other.

But it is extremely difficult to lay down fixed rules, with respect to the proper method to be observed in treating the hoofs of different horses: It is equally difficult to lay down any certain rule for determining the precise form to be given their shoes. This will be obvious to every judicious practitioner, from the various constructions of their feet, from disease, and from other causes that may occur; so that a great deal must depend upon the discretion and judgment of the operator, in proportioning the shoe to the foot, by imitating the natural tread, to prevent the hoof from contracting a bad shape.

In order, therefore, to give some general idea of what may be thought most necessary in this matter, I shall endeavour to describe that form of shoe and method of treating

54 COMMON METHOD

otherwise they will rather be hurtful than of any advantage.

The Chinese are said to account a small foot an ornament in their women, and, for that purpose, when young, their feet are confined in small shoes. This no doubt produces the desired effect; but must necessarily be very prejudicial to them in walking, and apt to render them entirely lame.

This practice, however, very much resembles our manner of shoeing horses: For, if we looked upon it as an advantage to them to have long feet, with narrow low heels, and supposing we observed no inconvenience to attend it, or bad consequence to follow from it, we could not possibly use a more effectual means to bring it about, than by following the method already described,

In shoeing a horse, therefore, we should in this, as in every other case, study to follow nature: And certainly that shoe which is made of such a form, as to resemble as
near

near as possible the natural tread and shape of the foot, must be preferable to any other.

But it is extremely difficult to lay down fixed rules, with respect to the proper method to be observed in treating the hoofs of different horses: It is equally difficult to lay down any certain rule for determining the precise form to be given their shoes. This will be obvious to every judicious practitioner, from the various constructions of their feet, from disease, and from other causes that may occur; so that a great deal must depend upon the discretion and judgment of the operator, in proportioning the shoe to the foot, by imitating the natural tread, to prevent the hoof from contracting a bad shape.

In order, therefore, to give some general idea of what may be thought most necessary in this matter, I shall endeavour to describe that form of shoe and method of treating

56 COMMON METHOD

treating the hoofs of horses, which from experience I have found most beneficial.

C H A P. III.

An Explanation of the Method of SHOEING HORSES, and Manner of treating their HOOFS, here recommended.

IT is to be remembered, that a horse's shoe ought by no means to rest upon the sole, otherwise it will occasion lameness; therefore it must rest entirely on the crust: And, in order that we may imitate the natural tread of the foot, the shoe must be made flat (if the height of the sole does not forbid it) it must be of an equal thickness all around the outside of the rim *, and on that part of it which is to be placed immediately next the foot, a narrow rim

* For a draught-horse about half an inch thick, and less, in proportion, for a saddle-horse.

rim or margin is to be formed, not exceeding the breadth of the crust upon which it is to rest, with the nail-holes placed exactly in the middle; and, from this narrow rim, the shoe is to be made gradually thinner towards its inner edge *.

The breadth of the shoe is to be regulated by the size of the foot, and the work to which the horse is accustomed: But, in general, it should be made rather broad at the toe, and narrow towards the extremity of each heel, in order to let the frog rest with freedom upon the ground. The necessity of this has been already shown.

The shoe being thus formed and shaped like the foot, the surface of the crust is to be made smooth, and the shoe, fixed on with eight or at most ten nails, the heads of which should be sunk into the holes, so as to be equal with the surface of the shoe. The sole, frog, and bars, as I have already observed,

H should

* See Fig. XIII.

should never be pared, farther than taking off what is ragged from the frog, and any excrescences or inequalities from the sole: And, it is very properly remarked by Mr Osmer, ‘ That the shoe should be made so
 ‘ as to stand a little wider at the extremity
 ‘ of each heel, than the foot itself; other-
 ‘ wise, as the foot grows in length, the heel
 ‘ of the shoe in a short time gets within the
 ‘ heel of the horse, which pressure often
 ‘ breaks the crust, produces a temporary
 ‘ lameness, perhaps a corn.’

This method of shoeing horses I have followed long before Mr Osmer’s treatise on that subject was published, and for these several years past I have endeavoured to introduce it into practice.

But, so much are Farriers, Grooms, &c. prejudiced in favour of the common method of shoeing and paring out the feet, that it is with difficulty they can even be prevailed upon to make a proper trial of it.

They

They cannot be satisfied, unless the frog be finely shaped, the sole pared, the bars cut out, in order to make the heels appear wide *: This practice gives them a shew of wideness for the time ; yet that, together with the concave form of the shoe, forwards the contraction of the heels, which, when confirmed, renders the animal lame for life.

In this flat form of shoe its thickest part is upon the outside of the rim, where it is most exposed to be worn ; and being made gradually thinner towards its inner edge, it is therefore much lighter than the common concave shoe, yet it will last equally as long, and with more advantage to the hoof ; and as the frog or heel is allowed to rest upon the ground, the foot enjoys the same points of support as in its natural state. It must therefore be much easier for the horse in his way of going, and be a means of making him surer footed. It is likewise evident, that, from this shoe, the hoof cannot acquire

* Wide open heels are looked upon as a mark of a sound good hoof.

60 PROPER METHOD

quire any bad form, when, at the same time, it receives every advantage that possibly could be expected from shoeing. In this respect, it may very properly be said, that we make the shoe to the foot, and not the foot to the shoe, as is but too much the case in the concave shoes, where the foot very much resembles that of a cat's fixed into a walnut-shell *.

It is to be observed, that the hoofs of young horses, before they are shod, for the most part are wide and open at the heels, and that the crust is sufficiently thick and strong to admit of the nails being fixed very near the extremities of each. But, as I have formerly remarked, from the constant use of concave shoes, the crust of this part of the foot grows thinner and weaker, and when the nails are fixed too far back, especially upon the inside, the horse becomes lame; to avoid this, they are placed more towards

* A diversion used by waggish boys to make cats slip and stumble, by fixing their feet in walnut shells with pitch and rosin.

towards the fore-part of the hoof; this causes the heels of the horse to have the greater spring upon the heels of the shoe, which is so very detrimental, as to occasion lameness; whereas, by using this flat form of shoe, all these inconveniences are avoided, and, if the hoofs of young horses, from the first time that they were shod, were continued to be constantly treated, according to the method here recommended, the heels would always retain their natural strength and shape.

By following this flat method of shoeing, and manner of treating the hoofs, several horses now under my care, that were formerly tender-footed, and frequently lame, while shod with broad concave shoes, are now quite sound, and their hoofs in as good condition, as when the first shoes were put upon them; in particular, the horse that wore the broad concave-shoes, from which the drawings of *Fig. X.* and *XI.* were taken, now goes perfectly sound in the open narrow

62 PROPER METHOD

row kind of shoes, as represented *Fig. XII.* and *XIII.*

If Farriers considered attentively the design of shoeing horses, and would take pains to make themselves acquainted with the anatomical structure of the foot, they would then be convinced, that this method of treating the hoofs, and that this form of shoe is preferable to that which is so generally practised.

It has been alledged, that, in this form of shoe, horses do not go so well as in that commonly used. This objection will easily be laid aside, by attending to the following particulars. There are but few practitioners that can, or will endeavour to make this sort of shoe as it ought to be. The iron, in forming it, does not so easily turn into the circular shape necessary as in the common shoe; and, perhaps, this is the principal reason why farriers object to it, especially where they work much by the piece. And, as many horses that are commonly
shoed

shoed with concave shoes have their soles considerably higher than the crust, if the shoe is not properly formed, or if it is made too flat, it must unavoidably rest upon the sole, and occasion lameness.

The practice of paring the sole and frog is also so prevalent, and thought so absolutely necessary, that it is indiscriminately practised, even to excess, on all kinds of feet *: And while this method continues to be followed, it cannot be expected that horses can go upon hard ground (on this open shoe) with that freedom they would do, if their soles and frogs were allowed to remain in their full natural strength.

Experience teaches us, that, in very thin soled shoes, we feel an acute pain from every sharp-pointed stone we happen to tread upon. Horses are sensible of the same thing in their feet, when their soles, &c. are pared too thin.

Hence

* It is notorious, that a dexterous hand, with a sharp buttress, will cut more hoof away in half-a minute, than nature can supply in some months.

Hence they who are prejudiced against this method, without ever reflecting upon the thin state of the sole, &c. are apt to condemn it, and draw their conclusions more from outward appearances, than from any reasoning, or knowledge of the structure of the parts. From a due attention likewise to the structure of a horse's foot in a natural state, it will be obvious, that paring away the sole, frog, &c. must be hurtful, and in reality is destroying that substance provided by nature for the defence of the internal parts of the foot: From such practice, it must be more liable to accidents from hard bodies, such as sharp stones, nails, glass, &c. From this consideration, we will likewise find, that a narrow piece of iron adapted to the shape and size of the foot is the only thing necessary to protect the crust from breaking or wearing away; the sole, &c. requiring no defence, if never pared.

There is one observation I would farther make, which is, that the shoe should be made of good iron, well worked, or what
smiths

smiths call hammer hardened, that is, beat all over lightly with a hammer when almost cold. The Spaniards and Portuguese Farriers, use this practice greatly, infomuch, that many people who have seen them at work, have reported, that they form their horses shoes without heating them in the fire as we do. It is well known, that heating of iron till it is red, softens it greatly, and, when shoes thus softened are put upon horses feet, they wear away like lead. But, when the shoes are well hammered, the iron becomes more compact, firm, and hard; so that a well hammered shoe, though made considerably lighter, yet it will last as long as one that is made heavier; the advantage of which is obvious, as the horse will move his feet with more activity, and be in less danger of cutting his legs.

The common concave shoes are very faulty in this respect; for, in fitting or shaping them to the foot, they require to be frequently heated, in order to make them bend to the unequal surface which the hoof ac-

I

quires

66 COMMON METHOD

quires from the constant use of these shoes; they thereby become soft, and, to attempt to harden them by beating or hammering when they are shaped to the foot, would undo the whole. But flat shoes, by making them, when heated, a little narrower than the foot, will, by means of hammering, become wider, and acquire a degree of elasticity and firmness which it is necessary they should have, but impossible to be given them by any other means whatever; so that any Farrier, from practice, will soon be able to judge, from the quality of the iron, how much a shoe, in fitting it to the circumference of the hoof, will stretch by hammering, when it is almost cold; this operation in fitting flat shoes will be the less difficult, especially when it is considered, that, as there are no inequalities on the surface of the hoof, (or at least ought not to be), which require the shoe to be bended thereto; shoes of this kind only require to be made smooth and flat, hence they will press equally upon the circumference or crust of the hoof, which is the natural tread of a horse.

CHAP.

C H A P. IV.

Observations, proving, from the daily Practice of Farriers, the truth of what has been advanced, with some general Remarks.

IN order to prove what I have advanced, it must be observed, that when the crust of a horse's heels is become so weak, low, and narrow, that the poor animal cannot walk, or even stand, on a plain or common concave shoe, it is then a practice amongst Farriers to put upon the foot a round, or what is termed a barred shoe, made so as that the frog may rest upon the bar, and the shoe-rim raised at a small distance from the crust of each heel: From this practice it is found, that the horse becomes sounder, and that the heels grow wider, higher, and stronger, so as to recover their natural strength and shape. Likewise, horses are frequently

frequently turned out to grafs without their shoes, in order to recover their decayed heels *.

The reason why both these methods recover horses heels that are decayed is plain, but passes unobserved; viz. in the former case, the frog is allowed to rest upon the bar of the shoe, which produces the same effect as if it rested upon the ground; and, as the shoe is raised at a considerable distance from the crust of each heel, they grow up, and, by the pressure from the weight of the body, the heels are expanded. In the latter case, the feet are in their natural state, the frog treads with freedom upon the ground, and the heels, being free from confinement, have full liberty to expand.

So

* A noble Lord assured me, that, when he got the command of the 1st regiment of dragoons, there were no less than 75 barred shoes on different horses in the regiment; which, notwithstanding the strong remonstrances made by the Farriers, he ordered to be taken off, and the horses turned out to grafs; when they were taken up, their hoofs were greatly improved, and afterwards continued sound without the use of barred shoes.

So much are Farriers convinced of the great advantage arising from the frog's being allowed to rest upon the bar of the shoe, that, in many cases, when this cannot easily be done, they fix upon it pieces of thick leather, in order to make the pressure greater upon the frog.

If it is then found, that, while a horse's heels are in the situation above mentioned, he can be made to go sounder, by allowing the frog to rest upon the bar of the shoe, (for confirmation of which, I appeal to the profession in general), surely, then, a horse may be allowed the same privilege of resting upon his frogs, when they are in their full natural strength.

About twelve years ago, I had occasion to observe, at London, an instance which confirms what I have been advancing. A horse, who had naturally low weak heels, with flat thin soles, was frequently lame when shod in the common concave shoes: Being a favourite horse, many experiments were

were tried, and his soles, &c. covered with broad-rimmed shoes; and, in order to make him tread the softer, pieces of an old hat were placed between the shoes and the feet, but without effect. The owner then resolved to have him shod in that method recommended by la Fosse: Many arguments were used against attempting this experiment; particularly, it was urged, that the heels, being already so weak, low, and thin, upon exposing them to the ground, would be worn quite away to the quick, and that it was impossible for the animal to walk without broad shoes to cover his soles and frogs. However, the horse was turned out to graze for some time, in order to let his frogs, &c. grow up, and was then shod in the manner recommended by la Fosse. I had the opportunity of shoeing him in the same method for eleven months afterwards, during which time the horse continued to be sound. And, in a case similar to this, which occurred to me but a few months ago, the hoofs were treated as above, after which, the horse continued to go better than when

when he was shoed with broad concave shoes.

In these cases, it is evident, from the flatness of the soles, and weakness of the heels, that the common shoes, with broad rims and strong washes, must have been made concave, in order to prevent them from resting upon the soles, &c.; and that this concave shoe, from the weight of the body, would act upon the weak heels by forcing them together in the manner I have already described (page 49.); and of consequence the horse must be lame. But, on the other hand, when the horse was shoed in la Fosse's method, the frog, or heel, being allowed to rest upon the ground, was at liberty to grow up and expand.

I have often shoed horses according to this method, and, contrary to what might have been expected from its appearance, (as this shoe only covers the toe) the crust of the heels and frog grew wider, higher, and stronger than they had been while shoed in
the

the common way. This form of shoe I have likewise frequently found to be of great advantage in recent contractions, by restoring their heels to the natural wideness, as by it the toe is raised rather higher than the heels, which makes the pressure considerably greater upon the latter, and by this means, in time, they are forced wider.

I would not however be understood to recommend in general this short shoe of la Fosse, as it will be found to answer only in some particular cases; but rather that the shoe should be continued to the point of the heels, and no farther: And this observation may serve to show, that horses can go very well, although their frogs be exposed to the hardest ground; a doctrine which seems to have but very little credit with most people.

Since then it is evident, that a horse's frogs or heels, in a natural state, rest upon the ground, why should we, as in our common practice of shoeing, deprive them of an advantage so essentially necessary, not
only

only for the support of their own weight, but also that of their riders? More especially, as the contrary practice is of the utmost consequence to keep the crust extended, and to prevent these contractions of the heels, so fatal to most horses.

If we try the experiment upon ourselves, by walking for some time upon our toes, we will soon find, that resting upon the heel is of great advantage, and the more so, if we have an additional weight to support. The case is the same in both, viz. the weight of the body is thereby confined too much upon the tendons.

Perhaps it may be said, that there are a great many hoofs of such a shape, from the deepness of the crust, that the frog cannot rest upon the ground, were horses even to go without shoes; but hoofs of this kind I look upon as already diseased: The frogs for the most part are rotten, and consumed by the contraction of the heels, which oc-
K casions

casions an obstruction of the fluids necessary for their nourishment.

I have already hinted, that it requires some time before horses, that have had their soles and frogs much pared, are able to travel upon hard ground in this form of shoe. But, let any one make the experiment, and form the shoe as directed; allow the soles and frogs to grow to their full natural strength, and keep the crust at the toe as round and short as the foot will admit, I will then venture to assure them from experience (if the foot is not already diseased) that they will find it to their advantage. Their horses will be rendered more serviceable, and preserved from lameness, and a great many diseases of the feet.

Although so much has been said against paring or cutting away the soles and frogs of horses feet at every time that they are shod; yet I would not therefore have it understood, that the crust should never be pared; on the contrary, it will not only be found

found extremely necessary, but likewise, as I have formerly hinted, to pare away the ragged parts from the frog, and any hard excrescences or 'inequalities that may grow upon the sole. What I mean is, that the real substance of the sole and frog ought never to be pared, unless something particular may require it, such as wounds, punctures, &c.

Many people are apt to run into the opposite extreme, and, from paring too much, they pare none at all. But the neglect of this operation, in some particular hoofs, would be as hurtful as paring too much in others.

It is to be remembered, that the intention of shoeing horses is to preserve their hoofs; when, therefore, the shoe answers this purpose, the hoofs at the same time being continually growing from their roots at the coronet on all sides downwards. If, therefore, the hoofs are not pared down, (especially those which are deep crusted), they would
grow

grow by far too large, which would be a detriment to the horse's going, as he would thereby be apt to slip and stumble, merely from the too great length of toe; another inconveniency arising from the too great length of toe and thickness of the horny substance at the basis of the hoof, is the great danger of the hoofs contracting at the coronet, (especially when they are kept too dry); hoofs, of this kind, acquire that particular shape which Mr Gibson compares to that of a bell, and which is termed hoof-bound. Another error equally pernicious, is the paring down the toe of all kinds of hoofs, without regarding their shape; from this injudicious practice, horses are frequently lamed, and a tenderness continues upon the parts for a considerable time afterwards, similar to what we feel from paring our nails too close. By this practice, likewise, the horse is thrown too much forward upon his toes, the heels are suffered at the same time, to grow to an unnatural height, which causes numbness, &c.

The

The crust of a horse's hoof may not improperly be compared to the nails on our fingers and toes; and we see how long, unequal, and ragged they grow, if not properly cut. And if a shoe has been upon a horse's foot for any considerable time, the crust grows on every side, more especially towards the toe; and there is an absolute necessity to cut this superfluous hoof away, till the foot is reduced to its natural shape and size. Besides, the surface of the crust, upon which the shoe rests, becomes rotten; therefore, what is unsound must be pared away, in order to procure a sound foundation for the new shoe.

But it is impossible, even in weak feet, to pare the crust, without taking away some part of the sole that is near it: This will be found necessary, in order to obtain a smooth and even surface, so far as the breadth of the shoe goes, but no farther,

It may be alledged, that if the soles and frogs are never pared, they may grow too large

large and bulky, so as to be hurtful; but this cannot happen; for, in proportion to their growth, what is superfluous dries, separates, and falls off.

From what has been said, it will appear, how difficult it must be, to lay down any particular directions for the keeping of horses' hoofs in a regular and natural form, as there is such a great variety in their shape; at the same time, it will be evident, how much must depend upon the skill of the Farrier, in judging with propriety, what quantity of crust each kind of hoof can spare with advantage, and with the least injury to his foot. But, I would observe, that deep crusted hoofs require to be pared down both at heel and toe*, in proportion to their size and growth; whilst the heels of flat thin hoofs must not be touched, long hoofs require to be kept short at the toe. But hoofs of an equal regular shape seldom or never require any more

* The usefulness of this will be farther explained, when we come to treat of hoof-bound.

more paring than is necessary to level the surface of the crust for the shoe.

Farriers in general are too desirous to excel one another in making what is termed fine neat work; and that is no other than paring the sole, till it yields easily under the pressure of the thumb; and, to give the frog a fine shape, it is frequently pared till the blood appears, to prevent the effusion of which, the actual cautery is sometimes applied. It is to be observed, that when the sole is so much pared, it dries and hardens in proportion as it is thinned; and the strong horny substance of the crust overcoming the resistance from the sole, is thereby contracted; this will produce lameness, the real cause of which is little attended to, or perhaps not known.

Among the many disadvantages that attend the common shoes, one is, their being more liable to be pulled off, from their great weight, length, &c. especially in deep grounds, in riding fast, or when the toe of the hinder
foot

foot strikes against the heel of the fore shoe: To prevent this inconvenience, sixteen or eighteen nails are frequently made use of, which destroy and weaken the crust by their being placed too near to one another; and it is not uncommon, when a shoe nailed in this manner is pulled off, that the crust on the outside of the nails breaks away with it. If this should happen, a few days after the foot has been so finely pared, (which is not unusual), or upon a journey, and at a distance from any place where a shoe may be immediately procured, the horse instantly becomes lame, from the thinness of the sole and weakness of the crust, and is hardly able to support the weight of his own body, much less that of his rider; whereas, by observing the method here recommended, and by fixing eight or at most ten nails, if the shoe should fall off, the horse will be able to continue his journey, without any inconvenience to his rider, or injury to his hoof.

Were we to suppose two men (one a breeder of horses, the other an ordinary smith),

smith), intirely ignorant of any such practice, as that of fixing iron shoes upon the hoofs of horses; but, from observing the crust to wear and break off, they conclude it practicable and necessary to fix upon it a piece of iron to prevent this effect. Suppose they should proceed to form this iron to the shape of the foot, in order to obviate the bad consequence mentioned, I dare venture to affirm, it would never enter into their heads to cut away the sole, the frog, and the bars, and to supply this defect, by making the shoe so much broader and stronger. Yet, however inconsistent this might appear, we see the same in effect practised daily. The soles and frogs of horses are pared till they are made thin, and then broad strong rimmed shoes are put upon the feet to defend the remainder, or, in other words, to supply the want of that substance which had been pared away. Besides, these shoes being made hollow, (or dish'd, as it is termed), gives them a round surface; which makes the poor animal go as it were upon pattens; and when they are brought upon

L

pavement,

pavement, especially those of the draught kind. they slip about and strain every nerve to keep themselves from falling.

To corroborate what I have said on this subject, I shall beg leave to illustrate it yet farther, with an extract from a book published some time ago, which treats of many things relating to the management of horses, with great precision and judgment. It is written by a noble Lord, whose experience and skill in horsemanship are universally allowed.

‘Phylick and a butteris (says the noble author) in well informed hands would not be fatal; but in the manner we are now provided with farriers, they must be quite banished. Whoever at present lets his farrier, groom, or coachman, in consideration of his having swept dung out of the stables for a greater or less number of years, ever even mention any thing more than water-gruel, a clyster, or a little bleeding, and that too very seldom; or pretend to talk of the nature

nature of feet, of the seat of lamenesses, sicknesses, or their cures, may be certain to find himself very shortly quite on foot, and fondly arms an absurd and inveterate enemy against his own interest. It is incredible what tricking knaves most stable-people are, and what daring attempts they will make to gain an ascendant over their masters, in order to have their own foolish projects complied with. In shoeing, for example, I have more than once known, that, for the sake of establishing their own ridiculous and pernicious system, when their masters have differed from it, they have, on purpose, lamed horses, and imputed the fault to the shoes, after having in vain tried, by every sort of invention and lies, to discredit the use of them. How can the method of such people be commendable, whose arguments, as well as practice, are void of common sense? If your horse's foot be bad and brittle, they advise you to cover it with a very heavy shoe; the consequence of which proceeding is evident: For how should the foot, which before could scarce carry itself, be able afterwards

wards to carry such an additional weight, which is stuck on moreover with a multitude of nails, the holes of which tear and weaken the hoof? If the foot is cut or hurt, one doctor says load it, by way of cover, with all you can: His conceited opponent as wisely counsels you, to let the horse walk bare upon the sore. The only system all these simpletons seem to agree in, is to shoe in general with excessive heavy, and clumsy ill-shaped shoes and very many nails, to the total destruction of the foot. The cramps they annex, tend to destroy the bullet, and the shoes made in the shape of a walnut-shell, prevent the horse's walking upon the firm basis which God has given him for that end, and thereby oblige him to stumble and fall. They totally pare away also, and lay bare the inside of the animal's foot with their detestable butteris, and afterwards put on very long shoes, whereby the foot is hindered from having any pressure at all upon the heels, which pressure otherwise might still perchance, notwithstanding their dreadful cutting, keep the heels properly open,

open, and the foot in good order. The frog should never be cut out; but as it will sometimes become ragged, it must be cleaned every now and then, and the ragged pieces cut off with a knife. In one kind of foot indeed a considerable cutting away must be allowed of, but not of the frog; I mean that very high feet must be cut down to a proper height; because, if they were not, the frog, though not cut, would still be so far above the ground, as not to have any bearing on it, whereby the great tendon must inevitably be damaged, and consequently the horse would go lame.

* The weight of shoes must greatly, wholly indeed, depend on the quality and hardness of the iron. If the iron be very good, it will not bend; and, in this case, the shoes cannot possibly be made too light: Care however must be taken, that they be of a thickness so as not to bend; for, bending would force out the nails, and ruin the hoof. That part of the shoe, which is next the horse's heel, must be narrower than any other,

ther, that stones may be thereby prevented from getting under it, and sticking there; which otherwise would be the case; because the iron, when it advances inwardly beyond the bearing of the foot, forms a cavity, wherein stones being lodged would remain; and, by pressing against the foot, lame the horse. The part of the shoe, which the horse walks upon, should be quite flat, and the inside of it likewise; only just space enough being left next the foot, to put in a picker, (which ought to be used every time the horse comes into the stable, and often on marches), and also to prevent the shoes pressing upon the sole. Four nails on each side hold better than a greater number, and keep the hoof in a far better state. The toe of the horse must be cut short, and nearly square, (the angles only just rounded off), nor must any nails be driven there; this method prevents much stumbling, especially in descents, and serves, by throwing nourishment to the heels, to strengthen them; on them the horse should in some measure walk, and the shoe be made of a proper length

length accordingly: By this means, narrow heels are prevented, and many other good effects produced.'

' In wet, spongy, and soft ground, where the foot sinks in, the pressure upon the heels is of course greater, than on hard ground; and so indeed it should be upon all accounts. The hinder feet must be treated in the same manner as the fore-ones; and the shoes the same: Except in hilly and slippery countries, they may not improperly be turned up a little behind: But turning up the fore-shoes is, I am convinced, of no service, and is certain ruin to the fore-legs, especially to the bullets. In descending hills, cramps are apt to throw horses down, by stopping the fore-legs, out of their proper basis and natural bearing; when the hinder ones are rapidly pressed; which unavoidably must be the case, and consequently cannot but push the horse upon his nose. With them on a plain surface, a horse's foot is always thrown forwards on the toe, out of its proper bearing, which is very liable to make the horse
stumble.

stumble. The notion of their utility in going up hills is a false one. In ascending, the toe is the first part of the foot, which bears on, and takes hold of the ground, whether the horse draws, or carries; and consequently the business is done, before the part, where the cramps are, comes to the ground. Ice-nails are preferable to any thing to prevent slipping, as also to help horses up hill, the most forward ones taking hold of the ground early, considerably before the heels touch the ground: They must be so made, as to be, when driven in, scarce half an inch above the shoe, and also have four sides ending at the top in a point. They are of great service to prevent slipping on all kinds of places, and by means of them an horse is not thrown out of its proper basis. They must be made of very good iron. If they are not, the heads of them will be perpetually breaking off, which will not happen, if the iron is good, and the nails are well made. By putting a fresh one every now and then on each side of the shoe, all wished-for ends are obtained, and no bad effects ensue.

ensue. I know that I am fighting against a very strong, though a very unreasonable prejudice. Let this be tried only, and compared fairly on experience with others; and not immediately laid aside, if, in slippery weather, a horse thus shod should now and then slip. In some weather, and on some ground, any horse any how shod may sometimes chance to fall. There is unluckily no absolute specific against accidental falling in any shoes yet discovered. I have tried all methods, and find the above mentioned one the nearest to perfection: This sort of shoe and nails when well made and fixed properly, being the firmest basis, and best hold I ever knew. I do not recommend ice-nails at all times. In certain weather, (the greatest part of the year indeed), the ground is in a condition which does not require any. From the race-horse to the cart-horse, the same system of shoeing should be observed. The size, thickness, and weight of them only should differ. The shoe of a race-horse must of course be lighter than that of a saddle-horse; that of a saddle-horse

M

lighter

lighter than that of a coach or bât horse; and these last more so than a cart, waggon, or artillery horse. At present, all shoes in general are too *heavy*; if the iron is good, shoes need not be so thick, as they are now generally made. The utmost severity ought to be inflicted upon all those who clap shoes on hot: This unpardonable laziness of farriers in making feet thus fit shoes, instead of shoes fitting feet, dries up the hoofs, and utterly destroys them. The shoes in England at present, that are contrived with the most sense, are what they call plates for the race-horses at Newmarket: I do not say, that they are perfect; but they are nearer the truth, than any others I know; nor are they substantial enough for common use, though sufficiently so for the turf.

‘Tis strange, that there should be so many ridiculous and absurd methods of shoeing; when it is so manifest, that a small share of common sense, with a moment’s reflection upon the structure of a horse’s foot, cannot but suggest the proper one.’

A little reflection upon what has been said, with respect to the different methods of shoeing horses, and the manner of treating their feet, will, I am persuaded, convince any person of judgment and impartiality of the propriety and usefulness of the method here recommended, and of the pernicious consequences which attend that commonly practised.

If we attend further to the known properties of horn, and of what a flexible nature it is, it will then be evident, that by confining the hoofs of a horse in a mould, they will retain the shape that is impressed upon them; whereas, by imitating the natural tread of the foot, and preserving it in its full strength, the horse is allowed to stand upon that firm basis which nature has given him.

But as no general rule can, with certainty, be laid down, for determining the precise form to be given to the shoes of horses, or the particular manner of treating their hoofs:

I would observe, upon the whole, that the less substance we take away from the natural defence of the foot, (but on particular occasions which may require it), the less artificial defence will be necessary; the flatter we make the shoe, we give the horse the more points of support, and imitate the natural tread of the foot; therefore, the nearer we follow these simple rules, the nearer we approach to perfection in this art.

PART II.

A

NEW INQUIRY

INTO THE

CAUSES of DISEASES

IN THE

FEET of HORSES.

THE NEW ENGLAND

AND THE NEW YORK

AND THE NEW YORK

AND THE NEW YORK

AND THE NEW YORK

AND THE NEW YORK

AND THE NEW YORK

AND THE NEW YORK

AND THE NEW YORK

AND THE NEW YORK

AND THE NEW YORK

AND THE NEW YORK

AND THE NEW YORK

AND THE NEW YORK

AND THE NEW YORK

AND THE NEW YORK

AND THE NEW YORK

AND THE NEW YORK

AND THE NEW YORK

AND THE NEW YORK

AND THE NEW YORK

AND THE NEW YORK

AND THE NEW YORK

AND THE NEW YORK

AND THE NEW YORK

AND THE NEW YORK

AND THE NEW YORK

AND THE NEW YORK

AND THE NEW YORK

NEW INQUIRY

INTO THE

CAUSES of DISEASES in the FEET of HORSES.

INTRODUCTIONS

THE Horse, of all other animals, contributes most to the pleasure and advantage of mankind; he no sooner arrives at maturity, than he is doomed to labour and fatigue, which subject him to many diseases, from which, in a natural state, he would be exempted.

The

96 INTRODUCTION.

The diseases to which his forefeet in particular are liable, deserve our utmost attention, as they are more exposed to be injured from a number of causes than any other part of the body. An inquiry into the causes of these diseases will in some measure lead us to proper remedies; or, what is of much greater consequence, will point out the means by which many of them may be prevented, as diseases, (and especially those in the feet), are more easily prevented than cured; for it is not with horses as with the human species, where, if the life can be preserved, though a limb or an arm be lost, they may nevertheless be useful members of society; but, unless a horse be preserved sound and active in all his limbs, he is only fit for the meanest drudgery, or becomes a burthen to his owner.

The great neglect with respect to the management of horses feet, is the not attending to what is most natural to them, whether in shoeing, or in the means commonly used to preserve them moist, cool, and sound;
for

INTRODUCTION. 97

for we find horses in a natural state, that is, running at liberty in the fields, have good sound hoofs, and are not troubled with diseases in their feet. And, in countries where horses run for the most part of their lives at large in the fields, diseases in their feet are hardly so much as known: Hence it is evident, that there must be some material difference, (exclusive of the shoeing), with respect to what the feet of horses are exposed to in a natural state, and the treatment they meet with when confined in a stable. This we shall endeavour to show, by making a few observations upon the means commonly used to preserve horses hoofs sound, moist, and tough, by using greasy or oily applications, together with some remarks upon the natural defects of the feet, (as some are naturally more disposed to diseases than others); and then consider the diseases to which the feet are liable, under the different heads by which they are commonly distinguished.

N CHAP.

C H A P. I.

Remarks upon Greasing, Oiling, and Stuffing

HORSESHOOFS.

TH E R E are many things practised with regard to the management of horses in general, which custom alone has established, and are now so universally esteemed as essentially necessary, that they are received as undoubted maxims, and submitted to without any inquiry into the reason or propriety of such practice. Of numberless instances that might be mentioned, those only concerning the feet come under our present plan.

The custom of keeping our finest horses standing constantly upon dry litter and hot dung in the stable, is exceedingly hurtful, as it overheats the feet and legs, and makes the hoofs become very brittle, dry, and hard.

Many

Many other bad consequences arise from this practice, as it lays the foundation of a number of diseases both in the feet and legs, particularly in the former, which are always found to agree best with coolness and moisture. Hence we find, that horses' hoofs, whilst running in the fields, are always in better condition than those that are kept hot and dry in the stable, which, beside being liable to many diseases, are hard, brittle, shattered, and often broken.

With respect to greasy or oily applications, so often prescribed for the hoofs of horses, in order to preserve them sound, tough, &c. although they are universally practised and recommended by all authors who have written upon the subject of farriery; yet I must be so singular as to dissent from this received maxim; and I shall endeavour to show, that greasy or oily applications to the hoofs of horses, are rather pernicious than salutary.

When young horses are first taken from the fields, their hoofs are cool, sound, and
tough,

tough. These are found from experience to be good qualities; but horses are no sooner introduced into the stable, than their hoofs are greased or oiled two or three times a week; and, if they are kept much in the house standing upon hot dry litter, without being frequently led abroad, and without having an opportunity of getting their hoofs cooled and moistened in wet ground, their hoofs grow so brittle, dry, and hard, that pieces frequently break off, like chips from a hard stone; and, when driving the nails in shoeing, pieces will split off, even although the nails are made very fine and thin. Now, if these same horses with brittle shattered hoofs, are turned out to graze in the fields, their hoofs in time will become, as they were originally, sound, tough, and good.

I would therefore ask the advocates for greasing, oiling, &c. what is the cause of this change? It certainly cannot be said, that the hoofs were greased or oiled while at grass; at least, I never knew or heard of

of one instance of this being done. It therefore must certainly proceed from the wet and moisture which the hoofs are exposed to in the fields, of which water is the principal ingredient; from the same cause we likewise find, that horses hoofs are always better (that is, sounder and tougher), at the end of winter, than after the dry months of summer: And we likewise know, as a certain fact, of which we have daily proofs, that, when all other means fail, we turn horses out to grass, in order to recover their decayed, brittle hoofs. And we find, that the hind feet of horses, from standing in the wet and moisture of their own dung, are always in better condition than the fore-feet, which stand upon hot and dry litter. But farther,

It has already been observed, that the hoofs of horses are porous, and that insensible perspiration is carried on through these pores, in the same manner, and according to the same laws, as take place in other parts of the body. Now, it is a known fact,

fact, that greasy or oily medicines, applied to the skin of the human body, prevent perspiration, which is frequently attended with the worst consequences. The same reasoning will hold with respect to the hoofs of horses; for greasy or oily applications close or shut up the pores of the hoof, by being absorbed or sucked into its inner substance. Hence the natural moisture which should nourish the hoof, is thereby prevented from arriving at its surface, which, on that account, becomes as it were dead, and consequently dry, brittle, and hard.

The original practice of greasing or oiling horses hoofs had probably taken its rise, from observing, that grease or oil softened dead substances, such as leather, &c. But this will by no means apply to the hoofs of horses, as there is a very great difference between the living and dead parts of animals. The former having juices, &c. necessary for their own nourishment and support, whilst the latter require such applications as will preserve them from decaying

ing and rotting. Hence likewise, we seldom see horses stand for any considerable time upon hot dry litter in the stable, having their hoofs greased or oiled, and kept dry, but they are troubled with many diseases, which lame their feet; whilst the hoofs of those horses that go at cart and plough, though never greased, are better in every respect, and are more free from those complaints, which, in fact, are the attendants of dry hardened hoofs, and the effects of obstructed perspiration. On the contrary, those hoofs that are exposed to coolness and moisture, are sound and good, whilst our finest horses, that are kept in stables, from our own management of their hoofs, become cripples, and subject to a number of maladies, which sooner or latter render them useless.

I have observed the dealers in horses, particularly in London, notwithstanding they use grease, &c. to the hoofs, when they get a bad-footed horse in their hands, moisten his hoofs frequently in water; for which purpose,

purpose, they keep a puddle of water and dung at the watering place, that, when the horse comes to water, his forefeet are sunk in the puddle, by which means they are cooled and moistened twice or thrice every day; so that, whilst they are making up his carcase for the market, his hoofs are likewise repaired, and sufficient to stand the test of a trial upon sale. But no sooner do horses with hoofs of this kind come into other hands, their hoofs at the same time being kept dry and greased, &c. than they degenerate into their former state. Hence the cause of so many complaints, that horses turn soon lame after they come from dealers, when, in fact, it proceeds from greasy applications, and neglecting to cool or moisten the hoofs in water; for the careful groom, when airing his master's horses, rather than lead them into a puddle, will go about, in order to keep their legs clean and dry.

Another practice equally pernicious, is the stuffing up horses hoofs (as it is called),
with

with hot, resinous, and greasy mixtures, under the notion of cooling and softening them. Various are the prescriptions recommended for this purpose, many of which are of a quite opposite nature to the purpose intended. Thus, after hard riding on dry roads, when the feet are supposed to be in a hot and inflammatory state, in order to cool and soften them, equal parts of turpentine and grease are melted together, and applied quite hot. Others apply tar and grease poured boiling hot upon the sole, mixed with tow, and fixed under the shoe by splints of wood. These applications are far from being of an emollient or cooling nature; on the contrary, they are hot and irritating, and therefore are exceedingly hurtful to the hoofs, as they render them brittle, &c. and by obstructing the natural perspiration, are productive of many other bad consequences. There is likewise a great impropriety in stuffing up the hoofs with rotten dung and stale urine; this, it is true, is moisture, but of the very worst kind, on account of the salts contained in

O

the

106 REMARKS UPON

the urine which of itself, greatly contributes towards hardening and drying their hoofs, in place of softening them, besides the other bad effects which may arise to the frog, &c. from the rottenness of the dung. But, without commenting upon the various compositions, or pompous prescriptions recommended by authors, or those handed about as receipts for the softening and stuffing horses hoofs, I would recommend one which is more natural, and ought not to be despised for its simplicity, as it is only cooling and moistening the hoofs with water morning and evening; and, to those who are fond of stuffing, I would prescribe bran and water, or clay, &c. made into the consistency of a pultice; and, in particular cases, where horses stand much in the stable, and the hoofs are disposed to be very hard, dry, and brittle, a pultice of this kind, or any other emollient composition, in which water is a principal ingredient, may be applied all round the hoof; or, in imitation of some dealers, to keep a puddle of water at the watering place, which will answer equally

qually well, if not better. From this manner of treatment, the hoofs will be preserved in their natural state, a free and equal perspiration kept up, by which the nourishment natural to the hoof will have free access to its surface, as it is this only which causes that cohesion of the parts which constitutes a firm, sound, tough hoof. We may likewise add, that, by this means, a number of diseases may be prevented, or at least rendered less hurtful.

CHAP.

C H A P. II.

Remarks upon the natural Defects of the
FEET.

IT is very well known, that different climates and different soils greatly affect the feet of horses; those that are bred in hot countries, standing mostly upon dry ground, have deep crusted hollow hoofs with small frogs; for, being but little exposed to wet or moisture, the fibres of the hoof contract more closely. And, even in Great Britain, there is a considerable difference, according to the dryness or wetness of the soil upon which horses are bred. Those that are bred upon the mountainous parts of England and Wales, and in the northern parts of Scotland, have generally good sound tough hoofs; whilst those horses that are bred upon low marshy grounds, (which are mostly of the big draught kind), have flat
large

large soft hoofs; for being kept too moist, by always soaking in wet, the horny fibres of the hoof are too much relaxed.

Those hoofs which are either too large or too small, in proportion to the size of the body, and thickness of the bones of the legs, are generally, and not without foundation, looked upon as bad. Large broad hoofs, for the most part, have thin flat soles, large, soft, spongy, frogs, a strong crust, something hollow, upon the upper and fore part, and full of wrinkles or rings, not unlike the rough outside of an oyster-shell. Hoofs of this shape are liable to that disease termed *Foundered*, and to have high, round, or swelled soles, and low weak heels, &c.

Small hoofs are liable to the opposite extreme, especially those of that kind which generally go under the denomination of asses hoofs, as they are deep crusted and narrow, the sole very hollow, the frog small, the heels high and strong, the crust upon the outside clear and shining; these are naturally disposed

110 NATURAL DEFECTS

posed to a contraction of the whole hoof, which is called Hoof-bound, and likewise to corns, running thrushes, or frushes; either of which renders a horse lame.

Some hoofs are pretty well proportioned, and look well to the eye, but, at the same time, they are thin and weak crufted, and not able to stand much fatigue in travelling upon hard stoney grounds. On the other hand, very strong crufted hoofs are by no means the best, but are liable to cracks, &c. In such hoofs, the horny fibres appear very distinct, and run in a straight line from the coronet or top of the hoof to its basis, resembling the grain of some kinds of wood, particularly oak. Hence they are disposed to cracks or fissures, which cleave the hoof quite through, sometimes from the coronet down to the bottom of the hoof. In others, these cracks at first do not penetrate through the horn, but appear like a seam on the surface of the hoof, commonly named a Sand-crack; which, from retaining the sand and gravel, at last works its way into the quick,

quick, and occasions lameness, &c. Another disadvantage attending very strong crufted hoofs is, that, when they stand long in a dry hot stable, they contract, and, by their thickness and hardness, bruise the internal parts of the foot. Hence the horse will be lame, though, at the same time, no visible defect will be seen about the hoof, excepting a great heat, pain, and tenderness in his feet; the true cause of which is seldom attended to, or not known; and hence the horse is said to be lame in some other part, perhaps the shoulders. Low thin heels are weak crufted, and liable to lameness from injudicious shoeing. The opposite extreme, very high heels, are equally bad, as they are subject to corns, and contraction of the hoof; and the deepness of the cruft causes a numbness in the feet, and unsteadiness in the horse's going, which make him liable to trip and stumble.

Much has been said by authors, with respect to the different colours of horses hoofs, ascribing different qualities and temperaments

ments to peculiar colours, such as, hardness, dryness, brittleness, &c. But it is very well known to practitioners in shoeing horses, that there are good and bad hoofs of all colours; some being naturally weak and disposed to be brittle, whilst others are tough and strong. But a great deal depends upon the management of them in the stable, in keeping them properly moistened, in order to preserve a due medium between these opposite extremes. It is likewise generally remarked, by authors, as a sure sign of bad thin hoofs, that, when the shoe-nails are drove high up in the crust, it is, say they, an evidence that the crust is thin, and that there was not sufficient hold, without driving the nails high up. But this can be no true criterion to judge by; for, if the nails can be driven high up in the crust with safety in a thin weak foot, the same may as certainly be done in a strong foot, with more ease and expedition, which indeed is frequently the case.

To enumerate the various kinds of hoofs which are to be met with, many of which
being

being more or less diseased, would perhaps rather tend to perplex than instruct. We shall only observe, that the nearer the hoofs approach to the extremes already mentioned, the more they will be exposed to the diseases consequent thereupon. To form a right judgement of what may be called a good hoof, it must neither be too large nor too small, in proportion to the size of the leg, and at the same time, its shape must be regular, gradually enlarging from the coronet towards its basis, the crust smooth, even, and free from seams, cracks, or wrinkles; the sole strong, and a little hollow; the heels firm and open; the frog tough, sound, and dry. All these are qualities necessary to constitute what may be called a good hoof.

P CHAP.

C H A P. III.

Wounds in the FEET.

WOUNDS in the Feet happen frequently, but chiefly from want of proper care, and treating them injudiciously when they are first inflicted. They become exceedingly troublesome, and sometimes even impracticable to heal, so as to preserve the horse sound and active, as the parts are naturally tender, and susceptible of violent inflammations, which frequently are attended with a great flux of humours to the affected part, and with many other bad consequences, which render the cure of them tedious, uncertain, and difficult, and in some cases dangerous to the life of the horse, or to render him intirely useless.

Wounds upon the coronet, or top of the hoof, when superficial, are easily cured, if
not

not neglected or improperly treated. But the most simple wound, by bad management or neglect, may, especially if the horse should happen at the time to be in a bad habit of body, be attended with dangerous consequences; therefore, however trifling they may at first appear, they should be treated with attention; for an inflammation and swelling, with all their consequences, may follow; instances of which I shall have occasion to mention towards the end of this chapter; and if a sinus or fistula should be formed under the hoof, before this can be cured, a large portion of the hoof must be cut off; and, if the annular ligament should be divided, false quarters, sand-cracks, &c. are the consequence, which are ever afterwards very troublesome, never admitting of a thorough cure.

When large deep wounds are inflicted upon the coronet, from which may be apprehended a great inflammation, and its consequences; to prevent these evils as much as possible, it will be necessary to have recourse

course to bleeding, and, at the same time, to give such internal remedies as are recommended in inflammatory cases; cooling salts, glysters, &c. together with a low soft diet, keeping the hoof moist and soft with emollient pulvices applied around it, which may be made of turnipe, mallows, or even bran and water.

Deep wounds upon the coronet are generally made by long sharp caukers upon the heels of the shoes of the opposite foot, penetrating downwards between the coffin-bone and the hoof. In this case, as there is no depending orifice or passage for the matter contained in the wound to be discharged downwards, there is great danger of a fistula or sinous ulcer being formed; to prevent which, an artificial drain or opening must be made through the hoof, first rasping or paring it very thin upon the outside where the perforation is to be made; then introduce a sharp pointed instrument, a little bent, into the orifice of the wound, and passing it to the bottom, force it outwards.

wards. This operation will be performed with less pain to the animal, if the instrument be concealed within a canula or hollow tube, till it reaches to the bottom of the wound; when the perforation is to be made by pushing it beyond the extremity of the canula, and by applying a bandage pretty tight round the coronet, the sides or lips of the wound may be brought into contact and healed up, or a seton may be introduced, and continued till the inflammation, swelling, &c. is removed. If this operation be too long delayed, the matter confined in the wound forms a number of sinuses or fistulae, which frequently run in different directions under the hoof, and require a large portion of it to be cut away before they can be healed up, leaving an ugly blemish, and a weakness or tenderness on that part of the hoof, which never admits of a thorough cure. But, by treating it in the manner now mentioned, the annular ligament may be preserved entire, and a false quarter avoided; and, although there may remain an horizontal crack or fissure in the hoof where
the

the perforation was made; yet, as the hoof grows downwards, it will likewise go along with it, and wear out without leaving a blemish, or any other bad consequence.

When the capsular ligament of the coffin-joint, is wounded or perforated by any instrument, so as to admit the external air into its cavity, the glands there situated, as I have formerly observed, inflame; and, in place of secreting a lubricating mild liquor, they discharge a sharp ichorous fluid, which destroys and corrodes the very cartilages or gristles upon the ends of the articulated bones, which at last grow together, and form what is termed an *anchylosis* *, and of course lameness. When a wound of this kind happens in the joints of the human body, if the patient, with or without the limb, can be preserved, it is as much as may be expected; for, in the one case, a stiff leg is better than a wooden one; but it is otherwise in horses, unless in the case of mares,

* An immobility of the joint, from the extremities of the bones growing together.

mares, or stallions for breeding; and, if a compleat cure does not take place, they are hardly worth the expence of keeping. I am well aware, that there are many farriers, who boast of their having cured wounds in the joints after they were affected with that symptom which they call a *joint-water*, that is, a discharge of the synovia or mucilaginous fluid contained within the cavity of the joint. But I would observe, that what they commonly call a joint-water, is only a yellow serum or lymph, which is frequently to be met with, issuing in great abundance from wounds in the legs, and not the synovia or fluid contained within the cavity of the joint. Notwithstanding wounds of this kind happen frequently; yet, so little are the generality of practitioners acquainted with the nature of them and their consequences, that they make no distinction betwixt them and those of a more simple nature. Hence, therefore, they find themselves frequently mistaken in prognosticating the cure of an wound, to appearance of a very simple nature.

Of

Of the many instances of this kind which have occurred to me, I shall only mention a few cases, which will serve to show the ignorance, folly, and rashness of those who take upon them to promise an effectual cure in all cases, (even the most complicated), at first sight, with as great assurance of success, as a carpenter would engage in putting a leg to a wooden stool. Thus a horse, by treading one foot upon the other, rubbed the skin off the coronet: A farrier engaged to compleat the cure in the very short space of 48 hours. He dressed the wound with what he called black oils *, in order, as he said, to dry it up. Finding the cure protracted longer than he expected, he repeated his dressings more frequently and more largely, till at last this corrosive dressing destroyed the capsular ligament of the coffin-joint. The synovia (or liquor which lubricates the joint) was discharged at the orifice of the wound, which, by this time, was much enlarged, the horse in the greatest agony, and very

* A mixture of the oil of vitric! and oil of Turpentine.

very lame. The proprietor was desirous that I should take him under my care. But, as I never knew one instance where the ligament was perforated, and the synovia discharged by the orifice of the wound, but that, in the end, the joint grew together, forming an anchylosis. I informed the proprietor of the consequences that might be expected from a wound of this nature; and, therefore, would not take upon me to promise a radical cure. He then applied to another farrier in the neighbourhood, who readily undertook to compleat the cure in a few weeks. But he found himself egregiously mistaken; for, after four or five months attendance, the anchylosis having then taken place, the joint was immoveable, the hoof became shrivelled and decayed, and, of course, the horse was perfectly lame.

Another case, similar to this, was a puncture or small wound from the sharp prong of a stable fork, which was run into the back part, or hollow of the fetlock into the coffin-joint, occasioned by the carelessness of

Q

the

the groom in shaking up the horse's litter. But, in order to put the blame off himself, he endeavoured to persuade his master, that it was only a crack or grease falling down, according to his way of expressing himself. Upon examining the wound, I freely gave my opinion, as in the former case, being convinced from the symptoms, that the capsular ligament was perforated, and that some instrument had penetrated into the cavity of the joint. This opinion the groom strongly opposed, and persuaded his master, that he would heal it up in a few days. But he soon found his mistake. The whole leg became greatly swelled and inflamed; the poor creature showed all the symptoms of the most violent agony, and, in spite of all the means that could possibly be used, the flux of humours became so considerable, that the leg broke out in great blotches at different places, and discharged an incredible quantity of bloody matter; the whole limb became wasted and decayed, which rendered the horse entirely useless.

A third case happened to a chaise-horse. In the winter season, being new shoed with long sharp caukers for the frost, and standing in a narrow confined stable, where other horses stood too close behind him, they kicked one another; the one with long caukers, mangled the hips of his antagonist, and wounded himself in one of his hind feet, the cauker entering at the coronet, and passing downwards, divided the capsular ligament of the coffin-joint, and, at the same time, wounded the coffin-bone, which was easily discovered from the probe grating upon the rough bone. Upon searching the wound next day, I found the ligament divided; and, upon moving the foot, the air rushed in and out from the cavity of the joint, by which the synovia was forced out, and had a kind of frothy appearance. The horse could not set his foot to the ground, but kept it hanging, and appeared to be in great pain. I acquainted his proprietor of what might be the event, as in the former cases; he was not a little amazed to hear that his horse would probably be lame for

for life, from such a small, and, to appearance, such a trifling wound. In a few days he was advised to apply to another farrier, who flattered his hopes; but, after keeping the horse at a great expence for some months, the event turned out as was predicted.

From the cases now related, and from a number of others which might be mentioned, and even demonstrated, from diseased bones which I have in my possession, it appears, that, when the capsular ligament of any joint is perforated or cut through, there is but little chance of a compleat cure being effected, so as the horse may be useful for the saddle or carriage; although, in other respects, to those who are willing to be at the expence, he may, if a strong horse, be useful in some kinds of drudgery.

As to the mode of dressing wounds of this kind, all that art can do, is to prevent, as much as possible, a violent inflammation or flux of humours to the affected limb, by
bleeding,

bleeding, glysters, cooling salts, together with a low soft diet, applying digestive poultices to the wound, and injecting now and then into the cavity of the joint, tincture of myrrh.

Wounds upon the coronet towards the back part of the foot or heel, which are commonly called an Over-reach, are occasioned by the toe of the hind shoe on the same side, cutting the fore-heel. Some horses are much addicted to this, owing entirely to their manner of going, viz. the hind foot moving in the same line of direction with the fore foot, in riding fast, the fore foot not giving place in time to the hind foot, strikes against the fore heel: Hence some horses, in trotting, make a clattering noise with the hind shoes striking against the heel of the fore ones; hence likewise, many horses are thrown down by the same cause *.

Although

* This, perhaps, would be better understood, by observing different horses trot or walk upon soft ground or sand. Those who are addicted to over-reach, place the hind

Although an over-reach is a wound of the complicated kind, being at the same time a contusion or bruise, together with a wound; yet they are nowise dangerous, and are easily cured by treating them in the manner hereafter mentioned; for, in two or three days, when the wound comes to suppurate properly, the bruised or dead parts fall off, and only leave a larger surface of a wound than was at first apprehended.

With respect to the dressing proper for recent wounds, I would observe, in general, that farriers are but too much prejudiced in favour of certain Balsams, Ointments, and Tinctures, and too sanguine in the belief of their supposed specific virtues; the healing qualities of which, they flatter themselves, are irresistible, and the secret only known to them, or a few such as deal in these mysterious specifics. The receipt for making of which, being intrusted to them as
never

foot either a little before, or in the same print or tread which the fore foot occupied; others place the hind foot on the outside of the print.

never failing remedies for all wounds, ulcers, fistulas, &c. Hence they are apt to conclude, they operate as it were by some irresistible charm, which they therefore apply to all external maladies, whether proper or not. Hence it frequently happens, that, from the application of hot irritating dressings to recent wounds, a violent inflammation is brought on the wounded part; and hence the cure is protracted, and in many cases the remedy becomes worse than the disease. Many farriers, &c. apply, as first dressings to recent wounds, what perhaps might be proper to old inveterate ulcers to deterge and cleanse them. They likewise endeavour to dry up (as they term it) wounds, by applying spirituous tinctures, corrosive powders, or hot oils, (as in case first), which adds greatly to the complaint, by increasing the inflammation; whilst others apply greasy ointments, &c. which produce a luxuriance of proud flesh, that becomes troublesome to keep within due bounds,

But,

But, laying aside all these specific nostrums, which are handed about as never failing remedies for all wounds, &c. I would observe, That all that art can do in the healing of wounds, is to remove every impediment which may obstruct the uniting of the divided parts, and to forward the formation of laudable pus or matter; that being once effected, the rest is performed by nature, which is self-sufficient. All the balsams and remedies which are said to generate new flesh, in fact only assist nature by excluding the external air, keeping the wounded parts warm, and confining the secreted humours, which, by remaining there a due time, are converted into laudable matter, which is the balsam of nature's own preparing. Therefore, the most approved and rational method of treating recent wounds is, to endeavour to bring them to a suppuration or discharge of laudable matter; for which purpose, poultices are most eligible, as they may be easily made more or less of a digestive quality, by melting
and

and mixing any proper digestive ointment with the poultice whilst warm.

Digestive Ointment.

℞ 1. Common turpentine.

Hog's lard.

Of each equal parts melted together.

This ointment may be made stronger or weaker, by diminishing the one ingredient and increasing the other, and is very proper to be mixed with poultices, in order to keep them soft and pliable.

Digestive Poultice.

℞ 2. Oat meal or coarse wheat flour,

Digestive ointment, two ounces.

Beer grounds, a sufficient quantity.

Boil the whole to the consistence of a poultice.

The quantity of the ointment may be increased or diminished in proportion to the size of the poultice.

R

The

The experience I have had of the good effects of poultices of this kind in recent wounds, makes me recommend them as preferable to any other mode of dressing, for promoting a quick suppuration, and leaving a smooth even cicatrix.

Emollient Poultice.

- ℞ 3. Oat meal; or coarse wheat flour.
Lintseed powdered; of each half a pound.
Boil them in milk or water to the consistence of a poultice.
To which add of sal. armoniac, in powder, one ounce.

This emollient poultice may be applied when there is a great heat, inflammation, or swelling attending wounds, and by the addition of fresh butter, lard, or oil, may be made of a more relaxing nature.

Many people are indeed prejudiced against the use of poultices, from a wrong notion, that they, (as the phrase is), draw humours

to

to the wounded part; but the absurdity of this way of reasoning will be evident to those who are acquainted with the healing art. To explain this more fully, I shall beg leave to quote a very judicious remark from Mr Bartlet, upon the *modus operandi* of poultices *.

‘Poultices,’ says he, ‘are of such real and extensive use in farriery, that we thought the composition of them could not be too general. How simple soever the ingredients may appear to some, (which are generally at hand), yet they will be found to answer most intentions, where present ease is to be obtained by warmth, softening, and relaxing the injured part. Many are the cases which demand such assistance, as recent swellings, inflammations, treads, bruises, cracked and swelled heels and feet, burns, scalds, bruised and lacerated wounds from stumps, thorns, glass, nails, &c. which last are much better treated with such simple emollient

* Pharmacopœia Hippiatrîca, p. 8.

mollient applications, than by hot oils, or scalding plaisters dropt into the wounds; which, under the absurd notion of *drawing*, but too often sear up the mouths of the vessels, hinder digestion, and consequently increase both pain and inflammation. In short, it is certain that very great services are daily done by the use of poultices, not only in those disorders to which the human body is incident, but also in those, wherewith the brute part of the creation is afflicted. One advantage which they have over most outward applications is peculiar to them, that they convey, and retain an additional heat, besides what is often in the ingredients; and as most of them have also something emollient in their composition, they must necessarily soften and relax the skin and vessels, abate tension, attenuate and thin viscid and obstructed juices, so that their return into the common course of circulation, or discharge by the pores of the skin, must in general be much better answered by poultices than by other methods.'

Poultices

Poultices may be continued till such time as the wound appears to be well digested, (that is, a kindly suppuration of white well concocted matter), look smooth and equal, free from cavities or excrescences of proud flesh; in that case, the use of poultices may be left off, and the surface of the wound sprinkled over with a very mild escharotic powder, which I have used in these cases with success, and is as follows.

℞ 4. Burnt limestone, that breaks down on being exposed to the air without water, three ounces;

Armenian bole, one ounce, rubbed together in a mortar, and put through a fine sieve.

After the wound is sprinkled with this powder, a pledget of dry lint may be fixed gently over it, and, when the surface of the wound is nearly equal with the skin, the powder will be sufficient, without any cloth or covering.

There

There is another species of wounds to which the feet are much exposed, called Punctures, on account of their small orifice, as the parts immediately after the wound is inflicted readily close up, whereby it becomes difficult to know the depth of the wound, and are generally occasioned from treading upon sharp stones, broken glass, sharp bones, and nails, and likewise from nails in shoeing, either of these perforating the sole or frog, and wounding the internal parts of the foot, which, from their situation and confinement within the hoof, are attended with the most violent pain and inflammation, which are frequently increased by the injudicious method generally observed in treating these wounds, when first inflicted, by the application of hot corrosive oils poured into the recent wound, in order to deaden it, which is productive of the worst of consequences. Thus a fine young chaise-horse, upon a journey, was pricked with a nail in shoeing, which being immediately observed, the farrier poured into the wound oil of vitriol. The horse continued very lame; and, upon the
third

third day, he gave up, not being able to travel any longer. The leg, immediately above the hoof, swelled to a most enormous size, broke out in different places, and discharged an incredible quantity of bloody matter, by which the whole limb was wasted, and the horse rendered entirely useless.

Punctures or pricks from nails in shoeing, are commonly said to proceed from ignorance or blundering. This may sometimes be the case; but, at the same time, it is an accident that may, and indeed does, happen to the most expert artist; and it is surprising, considering the narrow space there is in some hoofs for driving nails, that it does not happen more frequently*. When it is discovered in time, it is easily cured, by opening a passage for the matter downwards, and dressing it with any digestive ointment or poultice, keeping the foot moist, by applying an emollient poultice all round the hoof.

* The crust of a middling sized horse, will be about $\frac{3}{8}$ eighths of an inch thick, the largest hardly exceeding half an inch.

hoof. But, when it is overlooked, or a fragment of the nail remains in the wound, the inflammation increasing, it at last suppurates. The matter accumulating, and not finding a passage downwards, from the natural formation of the hoof, it moves upwards to the coronet or top of the hoof, and forms a round tumour, which afterwards breaks out and degenerates into a most malignant ulcer; commonly, though very improperly, termed a Quittor-bone. This tumour is attended with great pain and inflammation, and a considerable swelling round its basis. The method of cure commonly practised, and indeed recommended by authors, especially Dr Braken, is to bore a number of holes into the substance of the tumour with a hot iron, pointed pyramidally, and to introduce into these holes small pieces of corrosive sublimate, (some even use arsenick), which corrodes and destroys the flesh for some space around them, and at last separates from the sound parts, in a hardened mass of dead mortified flesh, called a Core, which falls off and leaves a large

large surface of a wound. But frequently, a second or sometimes a third operation is found necessary, before the fistulae or sinus can be opened to the bottom, and the proud flesh totally overcome, which grows very luxuriantly, and renders the cure tedious, uncertain, and very painful to the poor animal. Therefore, as this method of cure is attended with so many inconveniences, and is even dangerous from the quantity of sublimate, &c. made use of, which may as readily destroy the ligament of the joint, bones, &c. as the substance of the tumour, it ought never to be used but with caution, and when other means have failed, as it likewise endangers the life of the horse. The knife, in my opinion, is far preferable; first tie a ligature round the fetlock, in order to stop the bleeding, and with a crooked sharp knife, cut out the tumour to the bottom; afterwards, dress it like a fresh wound till it is healed up.

In ulcers of this kind, as there are a number of sinuses or fistulae which run in diffe-

S

rent

rent directions underneath the hoof, it is hardly possible to avoid destroying the annular ligament which lies below the coronet, and cutting away a large portion of the hoof; yet, in many cases, (especially when there is an opening in the tumour), the method proposed in page 117. for curing deep wounds upon the coronet with a seton may be first tried; and, if that does not succeed, either of the operations above mentioned may be performed.

When an ulcer of this kind happens to be situated upon the side or quarter of the hoof, or back toward the heels, the sublimite frequently destroys a great part of the cartilage, as described in page 39. part 1st; and as a part of this cartilage or gristle comes away with the lump of mortified flesh or core, it has given rise to that erroneous opinion, that this gristle, (or bone as they will have it), is the cause of this disease. It is from this circumstance, I apprehend, that it has got the name of Quittor-bone; and some farriers are so fully confirmed

firmed in this opinion, if we may judge from their practice, that, after the core or lump of mortified flesh comes away, they cut out as much of this cartilage as they can come at, despairing of a cure, unless the whole of this alledged quitter-bone be removed.

Punctures differ little or nothing in the manner of treating them from wounds; only the sole or frog should be scraped thin all round the orifice of the wound, which, at the same time, if too small, should be enlarged, and the digestive poultice applied, taking care that no fragment or extraneous substance remain in the wound, and keeping the whole hoof moist and soft with emollient poultices around it; and, in cases attended with violent pain, recourse must be had to such internal remedies as are proper in inflammatory cases, such as the following mixture by way of a drink, in order to prevent as much as possible, an inflammation or a flux of humours to the afflicted limb, bleeding being first premised, together with using a low soft diet.

℞ 5. Sal. nitri, 2 ounces;
Common treacle, 2 ounces;
Dissolved in a quart of water.

It will be necessary to repeat this draught morning and evening; if the horse should shew any uneasiness or appear griped, the quantity of water may be increased, or the same quantity of nitre may be given the horse in a mash of bran twice a day, if it does not cause him loath his food. If the coffin-bone should be wounded and turns carious, it will be tedious to wait for an exfoliation, as, from the spongy texture of this bone, it exfoliates but slowly; therefore, if it can conveniently be done, the carious parts may be scraped off with a knife, and afterwards dressed with pledgets of tow dipped in the tincture of myrrh; and let the poultice be applied above it.

In punctures, as above described, it is a common practice to pour into the wound hot corrosive oils, (some even run into the wound an iron nail made red hot), in order,

as the phrase is, to deaden the parts. In superficial or slight wounds, when perhaps little more than the hoof is wounded, the application of hot oils can hardly be very hurtful. But the barbarous method of pushing a hot nail into a recent wound, cannot fail of being attended with bad consequences, as the cure is unquestionably worse than the disease. But, at all events, when the puncture is deep, either of these cruel methods are extremely hurtful. The wound is said to be of the most inveterate or desperate kind, when, in fact, the bad practice of injudicious applications, &c. escape the just censure they deserve.

Contusions or bruises happen frequently on the coronet or top of the hoof, from the treading of other horses feet, which will occasion lameness; although at the same time, no external mark of violence will appear on the coronet, farther than a little swelling, or the horse will show a sense of pain when the affected part is touched or pressed upon. The following poultice in
this

this case may be applied with success, if continued for some time.

℞ 6. Thick lees of wine or vinegar, one pint.

Crude sal. ammoniac; two ounces.

Oat meal or bran, sufficient to make it of a due consistence.

Dissolve the sal. ammoniac in the lees first.

Before I conclude this chapter upon wounds, I would beg leave to mention the following rules, which ought carefully to be attended to by every practitioner, viz. The first thing to be observed in dressing of wounds is, to remove all foreign bodies, (if it can be done with safety), all lacerated or torn parts, whether of the flesh or of the hoof, &c. which, from their being left in the wound, would greatly impede the cure. 2. All wounds should be carefully inspected at every dressing, observing attentively whether any alteration has been made on their surface, whether they be
clean

clean at the bottom, and free from any extraneous substance that may hinder or retard the cure. 3. Whatever appears mortified, or any fungous or proud flesh, must be removed, either by suppuration, by the knife, or by caustic. 4. Cramming wounds with hard tents, or syringing them frequently with spirituous tinctures, are extremely hurtful. The former increases the pain and inflammation, &c. the latter produces a callous upon the internal surface of the wounds, which prevents their healing. 5. The dressings of wounds should lie smooth and easy upon the parts. 6. Over tight ligatures or bandages should be carefully avoided. 7. As wounds in the feet or legs, for obvious reasons, are more difficult to heal than on any other part of the body; therefore, rest and a wide stall are absolutely necessary, together with a low regimen or soft diet, in order to keep the body cool and open.

C H A P. IV.

Strains or Sprains.

EVERY one who has been much acquainted with horses, must have learned from experience, that the severe labour they undergo, exposes them to many accidents, particularly strains or sprains in those parts of the body which are immediately subservient to motion, viz. in the Muscles, Tendons, and Ligaments of the joints. To explain this more fully, it will be necessary to observe, that the muscles, tendons, &c. are composed of a number of minute or very small fibres or threads, which are joined to each other length ways, and possess or are endowed with an elastic power of contracting and extending themselves, in order to perform the various motions for which they are destined by nature; a strain or sprain is therefore an over stretching or straining
of

of these muscular or tendinous fibres by which they lose their elastic power, and are rendered unable to perform their necessary functions. This racking or stretching of the fibres, whether in the muscles, tendons, or ligaments, is attended with the most acute pain and inflammation of the parts. When the ligaments of any of the joints are strained, the inflammation is communicated to the glands situate within the cavity of the joint; hence the secretion of that lubricating mucilage necessary to keep the joint pliable is diminished or vitiated; and, as the least motion of the joint occasions the most violent pain, the horse naturally keeps that limb at rest; hence this natural liniment not being sufficiently attenuated, from the want of motion or attrition, which are necessary for this purpose, it accumulates, and being deprived of its more thin and fluid parts, it at length concretes into an irresolvable mass which totally destroys the motion of the joint. When any of the muscles or tendons are strained, the inflammation attending these complaints is communicated to the

T adjacent

adjacent parts which are always more or less swelled, and occasion pain to the horse when touched or pressed upon; when the like accident happens in the human body, the symptoms are the same, only, from the transparency of the skin, the parts appear of a black colour, which cannot be distinguished in a horse on account of the hair. But in slaughtered bullocks, sheep, &c. who have been driven hard, and whose muscles or tendons have been strained or bruised, it is frequently observed, after they are fleaed, that the cellular membrane which envelops the tendons or muscles is filled with extravasated blood; now, the same appearance would be discovered in the legs of horses when they are strained or bruised, were the experiment made. This therefore, being the state of the parts when distended and inflamed, (or in other words strained), the application of hot irritating mixtures must be hurtful; whilst oils or ardent spirits are equally improper, the one being of too relaxing a nature, the other causing a rigidity of the parts, which might be of some use, in order

der to brace and strengthen the relaxed fibres after the pain and inflammation are removed. If the strain is violent, bleeding will be necessary; and if it can be performed with safety, the nearer the affected part the better. When the ligament of the coffin-joint is strained, bleeding at the toe is sometimes of service; but, as this operation cannot always be done with safety, bleeding in the neck, which most people are acquainted with, and can perform with ease, will perhaps be sufficient to remove the inflammation. In violent cases after bleeding, cooling salts, as R. No. 5. given internally, together with glysters repeated at intervals, will be of great use, or perhaps absolutely necessary, as violent pain, whether proceeding from internal or external causes, is always more or less attended with a fever.

Cold charges are likewise prescribed for strains, which are made up with vinegar, Armenian bole, whites of eggs, and flower. But, I would observe, that there is an impropriety in this composition, as its whole
virtue

virtue consists in the astringent quality of the vinegar; but, by adding the Armenian bole, this quality is destroyed, and the vinegar becomes mild like small beer. The bole should therefore be omitted, and this composition in slight cases will be of great use. But in those that are violent, more efficacious remedies must be applied; as the following, by way of a poultice, applied warm twice every day.

R 8. Verjuice or vinegar, one quart;
Alum one ounce;
Meal of any kind to form it into the
consistence of a poultice.

When the inflammation, swelling, &c. are removed, it will then be proper to apply such remedies as brace up the overstretched fibres, &c. for which purpose, either of the following mixtures may be used cold, together with a bandage properly applied; rest being at the same time absolutely necessary to complet the cure.

R 9.

- ℞ 9. Sugar of lead, two drams;
Dissolved in one quart of water;
Spirit of wine, four ounces;
Vinegar, two ounces;

Or,

- ℞ 10. Vinegar, 6 ounces;
Spirit of vitriol, two ounces;
Camphorated spirit of wine, two ounces;
shake the bottle well when
used.

Upon the whole, it will be found, that the cure of strains will be more easily completed by cooling and astringent remedies applied in the form of poultices, and continued till such time as the inflammation and swelling are removed, and the parts recover their former strength and tone. If a stiffness should afterwards remain upon the joint, a mild blister, such as the following, (that is free from corrosive powder), may be

be applied with success, letting the horse run at grass for some time, especially in the winter season.

Blistering Ointment.

7. Hogs lard;
Venice turpentine, of each three ounces;
Yellow wax, one ounce;
Cantharides, three drams;
Oil of origanum, two drams.

Melt the lard and wax together, than add the cantharides (or Spanish flies) reduced into powder; lastly, add the turpentine; mix the whole into an ointment.

Blistering and firing are often recommended as the last resource in strains, (and indeed, these two go as it were hand in hand). But, I would observe, on this point, that, when the latter of these operations is performed upon any part of a horse's body,
that

that the horse is afterwards ordered to be turned out to grafs for some considerable time, which indeed becomes necessary, as it requires a long time before the inflammation caused by the firing is allayed, and its effects in some degree removed; I have frequently thought, that even in the most desperate cases, if these violent means had never been used, horses would perhaps recover sooner and better, were they only turned out to grafs, for the same length of time that is found necessary to recover the effects of this desperate remedy.

CHAP.

C H A P. V.

*Of that Disease in the FEET commonly
called FOUNDERED.*

DOCTOR Bracken tells us, that the term *founded*, especially hoof-founded, if rendered into our language, would be hoof-molten, which he says is downright nonsense; be that as it will, it would be foreign to our purpose, at present, to inquire into the meaning or etymology of the word *founded*; it is sufficient to observe, that there are two diseases to which horses are liable, and which are generally understood or known by that name, the one affecting the chest and shoulders, the other the fore-feet. The last of which only falls under our present plan.

The term *founded* is indeed frequently applied to lame horses in a very vague manner,

and without any determined or fixt meaning; for, when a horse shows any defect or impediment in moving his fore-feet, he is then pronounced to be foundered, whether he really has been so or not; that is, according to what is commonly understood by that term, owing to the want or neglect of not making proper distinctions of the different diseases in the feet. If we consult authors who have treated upon this subject, we will find their accounts of it very dark and imperfect; they bewilder the reader, and convey but a very imperfect idea of the nature of the disease: Hence many errors are committed in practice, to the destruction of a number of valuable horses, which otherwise, by proper management, might have been rendered sound and useful. When a horse is first attacked with this disorder, he shows a great restlessness, is hot and feverish, heaves much at the flanks, breathes quick, has a quick strong pulse, and groans much when moved about; at the same time, he shows symptoms of the most violent pain, sometimes in one, but more frequently in

U both

both fore-feet; for which reason, he lies down much; but, when forced to move forwards, he draws himself together, as it were into a heap, by bringing forward his hind-feet almost under his shoulders, in order to keep the weight of his body as much as possible from resting upon his fore-feet. In stepping forward, he sets his heel down first with great caution, as afraid of touching the ground. This last symptom should be particularly attended to, as from it we may conclude with certainty, that the chief seat of the disorder is in the feet. The hoofs at the same time are exceedingly hot, and, if water is thrown upon them, they dry instantly; if an attempt is made to pull off any of the shoes, the horse shows great uneasiness upon the least twist or pressure made upon any part of the foot, and a great unwillingness to support the weight of his body upon the other foot, especially when they are both alike affected.

The ancient farriers believed, that in this disease, the grease (or fat) in the horse's
body

body was melted, as it were, and falling downwards, produced this lameness; and I am afraid, the practice of too many modern practitioners discovers them to be of the same opinion; for no sooner is a horse seized with this complaint, than rowells, &c. are immediately prescribed, in order to drain off the supposed humours. At the same time, the shoes are made very hollow, in order to admit the greater quantity of boiling tar and grease, by way of stuffing or stopping. The soles of the feet are pared thin, almost to the quick. Some rub the legs with spirituous mixtures; whilst others again go yet farther, and, by mistaking the true seat of the complaint, from the horse's drawing himself together in the manner already described, even make applications to the back and loins. Hence it is no great wonder that horses, once affected with this malady, and treated as above, are never afterwards found, as this method of cure is quite foreign to the nature of the disease, which I shall now endeavour to show.

It

It is universally allowed, that the cause of this disease proceeds from too violent exercise, such as riding very hard upon stoney grounds or turnpike roads, and that young horses are most liable to it ; and to these we may likewise add, unequal pressure upon the internal parts of the foot, from the concave or hollow form of the common shoes. All these causes combined together, when a horse is of a plethoric or full habit of body, and not accustomed to violent exercise, occasion this disease in a greater or lesser degree. To form some faint idea of this malady in horses, we may in a great measure appeal to what we experience ourselves in running upon hard ground ; for we find, that it occasions a great heat, attended with a smart pain in our feet, which would be greatly increased from uneasy shoes, especially, if compelled (like horses) to continue the running for any considerable time. The feet likewise become turgid and painful after a long day's journey, especially if the person is not accustomed to travel; and this inflammation frequently terminates in blisters

sters upon the soles of the feet. Hence it is evident, that, in proportion to the habit of body the horse is in at the time, and the violence of the labour or exercise he has undergone, the inflammation in the internal parts of the foot will be more or less violent, and attended with all the symptoms already mentioned.

This disease, then, appears from the symptoms attending it, and the effects it afterwards produces in the feet, to be, in its first stage, an inflammation of the internal parts of the feet, arising from the violent exercise, which occasions a more than ordinary determination of the blood to the feet; hence that rapid circulation of the blood in the vessels within the hoof, which frequently terminates in a rupture of these vessels, and of course an extravasation of the blood, and, in some cases, a total separation of the horny substance of the hoof from the aponeurotic fibres upon the fore part of the coffin-bone; whilst in others, where it has been less violent, a concretion or growing together

gether of the parts within the hoof has taken place, so as to appear upon dissection one solid mass; and hence lameness.

Thus, a young chaise horse, after a hard day's work, was attacked with all the symptoms already mentioned, and was treated in the common manner as above related, that is, rowelled, &c. In a few weeks after the disease had taken its course in the ordinary way, he was put under my care. The sole, a little before the point of the frog, in one of his fore-feet, became soft, and having a curiosity to see the cause of it, I cut away the sole, which was but thin, and found a cavity containing a redish coloured liquor; after removing the ragged parts of the hoof, a large transverse opening showed itself, into which a probe was introduced upwards between the coffin-bone and the hoof; the connection between the tendinous fibres upon the surface of the coffin-bone and the hoof, was destroyed at the fore part or toe; the bone losing part of its support, pressed down upon the horny sole, and produced that

that swelling or convexity of its surface, which is called a high, round, or pumice sole. The hoof lost its former shape, growing narrow towards the toe, with a preternatural thickness of the horny substance of the crust, whilst the quarters or sides of the hoof were decayed, thin, and full of deep wrinkles, together with a hollowness upon the surface of the upper part of the hoof, the whole foot having a diseased appearance. When the horse had recovered so far as to be able to walk, in going forward he threw out his legs well before him, but drew them backwards before he set his foot to the ground; setting the heel down first with great caution upon which he rested most, the toe being turned a little upwards. From this symptom only, we may judge with certainty, even though at a distance, upon seeing a horse walk, whether he has ever been foundered or not.

This disease proves still more violent, and indeed sometimes fatal, if the horse has been allowed to stand in cold water when his feet

feet are overheated. Thus, a saddle horse after being rode very hard, was turned loose into a stable-yard all over in a sweat; he went immediately into the water pond, where he was suffered to stand for a considerable time in very cold weather; a few hours afterwards he was seized with a most violent fever, and a great pain in his forefeet; he lay upon the litter for some days in the greatest agony, and at last both his hoofs dropt off, occasioned by a mortification brought upon the parts from the application of the cold water, which rendered him intirely useless. Cases similar to this happen sometimes to the extremities of the human body, upon being plunged when overheated into cold water. Thus *, a young woman in a violent continual fever, during the dog-days, falling into a warm sweat upon a critical day, plunged her hands into a vessel of cold water just drawn out of a well; her hands immediately grew full of pain, and swelled up as high as the water had reached,

* Van Swieten's commentaries, vol. 4. page 17.

reached, and by degrees grew livid. And, though by deep scarifications, and the application of other remedies, her life was saved; yet the last joints of her fingers in the right hand mortified and dropt off.

From what has been said with respect to this disease, it is evident, that as the circulation is greatly increased, and the current of blood chiefly determined toward the forefeet, attended with symptoms of the most violent pain, we may thence conclude, that there is an inflammation in these parts; therefore, the cure must first be attempted by diminishing the circulation of the blood, giving cooling salts internally, as R No. 5. glysters, an opening diet, and plenty of diluting liquor, four or five times a day, together with emollient poultices applied warm all round the hoofs, in order to soften them, and keep up a free and equal perspiration; observing, that his shoes be easy upon his feet; but by no means to pare the sole or frog to that excess which is commonly done in cases of this kind, farther than cleaning

X

away

away the hardened surface of the sole and frog, in order that the poultice may have the desired effect, by increasing the perspiration through the pores; and to avoid all manner of greasy or oily applications to the hoofs, for the reasons already mentioned.

In all violent inflammations, there is nothing which contributes more to give immediate relief, than plentiful bleeding timeously performed, and which ought by no means to be neglected, or too long delayed; for, in cases of this nature, although the fever may be so far overcome by strength of constitution, or prevented by medicines from destroying the life of the animal; yet the effects of it will ever afterwards remain, and, of course, the horse will be lame for life. I have frequently experienced the good effects of bleeding, and that plentifully, upon the first attack of this disorder, so as to carry it off in two or three days without the least bad effect remaining; if the fever should continue violent, the bleeding must be repeated. But, in order to judge properly

perly when this operation may be necessary, the pulse must be attended to, the knowledge of which is of the utmost importance in the practice of farriery, and should be more generally studied, as it is the only criterion or rule by which we may be directed when bleeding is necessary, or when it ought to be avoided. But, when this operation is neglected, and the cure is first attempted by rowels, &c. it is a long time before they can come to a proper suppuration, on account of the violence of the fever. Hence, in place of suppurating, they sometimes turn into a gangrene, by which many horses lose their lives. But, at all events, before the rowels could have any effect, even allowing they were to suppurate in the common time, (which is about three days), the inflammation within the hoof will by that time have taken place, and its consequences will follow, to the ruin of the feet, and, of course, the soundness of the horse.

The manner in which a horse walks or stands upon his foreparts, when affected with this disorder, has induced many practitioners,

tioners, &c. to conclude, that the shoulders are affected; hence they say a horse is foundered in the body, and that drains, such as rowels, are the only proper remedies. But, granting there was a stiffness, &c. all over the body, which is frequently the case in the beginning of inflammatory fevers, bleeding ought to be premised, as the first step necessary towards the cure.

CHAP.

C H A P . VI.

Hoof-Bound.

THIS complaint affects the hoofs differently, according to their natural shape, and the treatment they are exposed to, whether from injudicious shoeing, keeping the hoofs too hot and dry, or paring the sole and binders at every time they are shod. Some are affected with a circular contraction of the crust, compressing the whole foot. In others, the crust is contracted at the coronet only, compressing the annular ligament, &c. A third kind is, when either one or both heels are contracted; hence, therefore, in proportion to the degree of contraction, the internal parts of the foot are compressed, and the horse becomes more or less lame.

It

It has been already observed, in page 109. that deep crufted narrow hoofs, or what are commonly called asses hoofs, are naturally disposed to this malady; when they become diseased, they are easily known from their appearance, as they are smaller in proportion than the legs, and frequently smaller at their basis than at the coronet; the cruft of the heels is high, thick, and strong, the frog wasted and rotten; the hoofs are almost perpendicular; the horse moves in pain, steps short and quick, and trips and stumbles frequently; it is not uncommon that one foot only is affected, which then appears considerably smaller than the other.

This disease is hastened and brought on, by paring and hollowing out the sole and binders at every time the shoes are renewed, from a mistaken notion of widening the heels; hence they are thereby made so very thin, that the cruft at the extremity of the heels, may be forced almost close to one another, even with one's fingers; and what
greatly

greatly forwards the complaint, is the form of the shoes commonly used, which are made hollow; for this practice of hollowing the shoes so universally prevails, that, without any regard to the shape of the sole, whether it be flat or otherwise, the shoe is made concave or hollow upon that side which is placed next the foot. Hence the outer edges of the concave shoe forces the crust at the heels nearer to one another, as mentioned in page 49. part 1. they being there retained, the contraction of the hoof becomes general, and confirmed beyond the power of art to remedy.

In the second species of this complaint, the hoof acquires a particular shape, which Mr Gibson, in his Farriery, compares to that of a bell; that is, the hoof appears contracted and tight round the coronet and instep, but spreads wider downwards to its basis; the hoof in other respects looks well and sound. This is generally occasioned by keeping the horse standing for a long time together in the stable upon hot dry litter,
without

without moistening and cooling the hoofs, allowing them at the same time to grow to a preternatural size, both in length and breadth; hence, from the great strength, the rigidity and dryness of the under part of the hoof, a preternatural stricture or pressure is made by the hardened crust at the coronet, which compresses the annular ligament, and parts near it.

The third species of this malady is, when either one or both heels are contracted. This frequently happens even in all kinds of hoofs, but more especially in those that are flat, from the use of concave or hollow shoes, together with cutting out the sole and binders at every time the horse is shod. But it more frequently happens, that the inside heel only is contracted, from the natural weakness of that part of the hoof; hence the weight of the limb, &c. pressing upon the inside crust at the heel, it is inflected or bended inwards, by which, together with the concave form of the shoe, and loss of substance from paring, &c. the disorder

is

is increased, the crust of the heels becomes contracted, and compresses that quarter of the foot, and of course occasions lameness.

With respect to any particular method of cure to be observed in removing this disease, all that can be said is, That, as it is one of that kind which comes on gradually and perceptibly, it may by proper care and management, when properly attended to, be prevented. But, when once it becomes confirmed, it never will admit of a thorough cure. Nevertheless, it may be so far palliated as to render a horse in some degree founder, by keeping the hoofs cool and moist; as, in this case, they are naturally disposed to be very hot, dry, and hard, his shoes should be flat, narrow, and open heeled, the hoofs never greased nor oiled, the soles never pared. But, as the crusts of the heels in these hoofs are preternaturally high and strong, they should always be pared down till they are lower than the frog, that it, if possible, may rest upon the ground. This operation will tend to remove that stricture from the heels and

Y frog,

frog, which will greatly relieve them. But, many people adhering too strictly to that general rule, which, from inattention, has crept into practice, viz. of paring down the toes, and keeping the heels entire, without reflecting upon the shape or natural formation of the particular hoofs, continue the same practice upon deep crusted, high heeled hoofs, which is only necessary to be observed in long toed hoofs with low heels, and thereby this disorder is greatly increased; the weight of the body is likewise thrown forwards, by which the horse stands too much upon his toes; and hence the leg-bones, from the aukward habit of the horse's standing, become bent at the joints, and occasion what is called *knuckeling* or *nuckeling*.

The second species of this complaint, is when the crust at the coronet becomes contracted, and compressing the annular ligament, &c. occasions lameness, the hoof acquiring that shape, formerly compared to that of a bell. Different methods have been
 tried

tried and recommended for the cure. Mr Gibson, in his treatise on Farriery, proposes to make several lines or rases on the fore part of the hoof with a drawing knife, almost to the quick, from the coronet down to its basis, and turning the horse out to grass; others, after this operation is performed, screw the heels wide, by means of a screwed shoe; a third method practised is, to draw the sole, and divide the fleshy substance of the frog with a knife, and keeping it separated by the screwed shoe above mentioned; a fourth method in use, is to make the inner-rim of the shoe-heel very thick on the under side, (its upper surface being quite flat), and by making it rest upon the binders and sole at the extremity of the heels, by pressure from the weight of the body, the heels are forced to recede to a greater distance from one another. Either of these methods may indeed in a small degree widen or expand the horny substance of the crust, and may be of use in recent contractions. But, when once it has become confirmed, and is of some standing,

no

no means whatever can then restore the internal parts to their primitive state ; for, as the contraction takes place, the tender parts within the hoof being compressed, lose their tone, and diminish in their size. The blood-vessels become impervious ; hence a decay or wasting of the whole foot, and not unfrequently a concretion of the parts, and, of course, the impossibility of the horse ever becoming sound. But, as it has been observed, that the cause of this species of the complaint now under consideration, proceeds from allowing the hoofs to grow to an extraordinary size, and keeping them too hot and dry, by which they acquire a rigidity and dryness, occasioning a preternatural compression upon the coronet, to remove which, (as the case will only admit of palliation), the surface of the hoof at its basis must be pared down till the blood appears, and the thick strong crust upon the outside towards the toe, rasped in the same manner ; the horse turned out to graze in soft meadow ground till the feet recover. But, it must be observed, that, if both hoofs
are

are alike affected, one of them at one time only should be treated as I have mentioned, as a tenderness will remain for some days, which might prevent the horse from walking about in search of food.

The third species, which is a contraction of one, or sometimes of both heels in flat feet, from the use of concave shoes, &c. Where it has not been of a very long standing, it may, by proper management, be greatly relieved, by laying aside the use of concave shoes, and refraining from paring the sole, &c. But, to remove the stricture of the hoof more immediately, the whole contracted quarter of the crust near the heel must be rasped or pared to the quick, from the coronet to its basis, from B, in figure 2. to E *, close to the frog, taking care to avoid drawing blood, putting on a barred shoe, causing the shoe-bar to press upon the frog, keeping the hoof cool and moist, or turning the horse out to grass. Hence the pressure from

* See plate.

from the contracted hoof being removed, and the frog at the same time resting upon the bar of the shoe, the contracted quarter is thereby dilated or expanded; the new hoof growing from the coronet downwards, acquires a round, full shape, and becomes of its original form.

From what has been said concerning this disorder in the feet of horses, it is evident, what little prospect there is of effecting a thorough cure by art, as the complaint is of such a nature as only to admit of some palliation, and, even then, in some very favourable cases only. Nevertheless, I do averr that it is practicable to prevent contractions in the hoofs from taking place, even in those hoofs which are seemingly disposed that way from their shape, &c. by observing the rules already laid down, viz. by keeping the hoofs moist and cool, which is their natural state, using flat shoes, from which the hoofs can acquire no bad shape, allowing the sole and frog to continue in their full strength, the latter especially to rest upon
the

the ground, and keeping the crust within due bounds, not suffering it to grow too long towards the toe, nor too high at the heels.

CHAP.

C H A P. VII.

Corns.

IN the human body, Corns in the feet are termed so with some propriety, from their horny substance; but, what are called Corns in the feet of horses, are very improperly named, as they are quite of an opposite nature, rather resembling contusions or bruises, and not unlike those bruises which happen in the palms of the hands and fingers to working people, arising from violent pinching, bruising, &c. where the skin is thick, which appears of a blackish red colour, and exceedingly painful at first, containing blood; but, in the end, the serum or thinner parts being absorbed, the red particles appear, when the dead skin is removed, like red powder. In like manner corns, or rather bruises, appear red and foxy (as the phrase

phrase is), they are situate in the corner or sharp angle of the sole at the extremity of the heels, where the crust reflects inward and forward, forming the binders *. But, they are more frequently to be met with in the inside heel, from the manner of the horses standing, together with the pressure or weight of the body, which is greater upon the inside of the hoof than the outside. Bruises of this kind are exceedingly painful, insomuch that the horse shrinks and stumbles when any thing touches or presses upon that quarter of the hoof; hence lameness.

This complaint arises from different causes, according to the shape or natural formation of the hoof, together with the treatment they are exposed to. But the following are the most frequent.

1st, In flat low heels, from too great a pressure of the shoe-heel upon the sole, whether

Z from

* See plate *Fig. 2.* E E.

from caulkers, a too great thickness of iron upon the heels of the shoe, or its being bended downwards, upon the sole or the shoe made too concave; either of these causes will produce the same effect; for, from the too great pressure upon the horny sole, the fleshy sole, which lies immediately underneath it, is compressed and bruised between the shoe-heel, the sole, and the extremities or outward points of the coffin-bone; and hence a contusion or bruise, attended with an extravasation of the blood, which afterwards gives that part of the sole a red appearance, and is the reason why the sole on that place never grows up so firm and solid as it was before, but remains soft and spongy, forming a lodgement for sand and gravel, which frequently insinuates itself into the quick, causing an inflammation attended with a suppuration or discharge of matter, which, if not finding a passage below, will break out at the coronet.

2d, This complaint is produced in wide open heels, when the hoofs are very thick and strong, from too great a luxuriancy of the

the binder, which being inflected or bended downwards between the shoe and the sole, compresses the fleshy sole, as already mentioned; and hence lameness.

The third cause of this malady in deep narrow hoofs, proceeds from a contraction of the crust compressing the heels, &c. Hence, it not unfrequently happens in hoofs of this shape, that both heels are alike affected, from the stricture and pressure of the hardened crust upon the tendinous aponeurosis, &c. on the outside of the coffin-bone, which, in this case, is bruised between the bone and the crust; hence the redness may sometimes be traced upwards almost to the coronet. In this case, no radical cure can take place, as the cause which produces these bruises, &c. will exist while the horse lives, and, at the same time, the horse will be lame from the contraction of the hoof; but the remedy proposed by way of palliation for hoof-bound feet, in page 169. may be of use to render the horse in some measure more serviceable.

With

With respect to the two first causes, when the bruise proceeds from too great a pressure from the shoe-heels, &c. upon the sole, the shoe must be made so as to bear off the tender part, and likewise to some distance on both sides of it; for which purpose, a round, or a barred shoe, will be necessary. The red and bruised parts must be cut out to the quick, and the hoof kept soft with emollient poultices for sometime. But the texture of the blood-vessels, and likewise that of the hoof at the bruised part, being destroyed, a sponginess remains afterwards, and, upon the least unequal pressure from the shoe, &c. are liable to a relapse, never admitting of a thorough cure, and of consequence subject to frequent lameness.

Corns or bruises in the feet of horses might, by taking proper care of them, be easily avoided; for, in those countries where horses go mostly barefooted, this malady is not so much as known; neither are those horses that go constantly at cart and plough subject to them; hence, therefore, this complaint

plaint is most frequently to be met with in great towns where horses go much upon hard causeway, having their shoes turned up with high caukers on the heels, and frequently renewed, at the same time their hoofs being kept too dry and hard, from standing much upon hot dry litter; hence will appear the necessity of complying with what is most natural to the hoofs of horses, namely coolness and moisture, together with using such a form of shoe as will press equally upon the circumference of the crust, and without giving it any bad unnatural shape.

CHAP.

C H A P. IX.

Running Thrushes.

A Running Thrush (or Frush), is a discharge of a foetid, and sometimes ichorous matter from the cleft in the middle of the frog, affecting one, frequently both, and, in some cases, all the four feet. But generally, the fore-feet are most subject to this disease; in most cases, it seldom admits of a radical cure, but is subject to frequent relapses, occasioning lameness, from the rawness and tenderness of the parts affected, on being exposed to sand, gravel, &c. or in rough grounds, from the heels treading on sharp stones, &c.; and when the horse happens to be of a bad habit of body, they even degenerate into what is commonly called a canker.

Running

Running thrushes, according to Mr Gibson *, 'are sometimes profitable to horses 'of fleshy and foul constitutions; because ' (says he) they drain off a great many bad 'humours.' But, however salutary or beneficial they may be in some particular constitutions, yet, upon the whole, they prove extremely troublesome, on account of the lameness and tenderness of the feet affected with them; and, where there occurs one case in which they may properly be said to become beneficial to the constitution, there are a far greater number in which they are hurtful, as they are brought on by the treatment the hoofs are exposed to, together with the injudicious method generally observed in shoeing them, particularly in those hoofs that are narrow heeled, or disposed to be hoof-bound, running thrushes being always an attendant upon that complaint. But, to explain this more particularly, I have formerly observed, that there is in the middle of the frog, a cleft or opening, by which the

* Vol. 2. p. 134.

the heels in a natural state have a small degree of contraction and expansion, especially when the horse treads or presses his heel upon the ground, the frog then expands; when, therefore, a horse is shod with concave or hollow shoes, the heels are deprived of that power of expansion, being constantly confined in a contracted state by the resistance from the outer edges of the concave shoe, by which the frog is pressed or squeezed on both sides, by the crust of the heels being brought nearer, or almost into contact with one another. Hence pain, inflammation, an obstruction of the blood, &c. (in the fleshy substance of the frog), and of course that wasting and rottenness of its external covering, which falling off in pieces, leaves the quick almost bare; the new frog growing in detached pieces, never acquires the solidity of the former; and hence that rawness and tenderness which ever afterwards remain, and that extreme sensibility of pain, when any hard substance touches that part of the foot, and of course subject the horse to frequent lameness. There are

no

no doubt other causes which may be said to occasion this malady, even in those hoofs that are wide and open at the heels, where there is not the least appearance of a contraction at the heels; but these are generally owing to the treatment the hoofs are exposed to in the stable, by keeping them too hot and dry for a long tract of time together, during which time, the natural perspiration is greatly obstructed, by the constant application of grease or oil to the hardened hoofs, and stuffing them up with hot, resinous, and greasy mixtures, as tar, turpentine, &c. the horse being all the while kept at full feeding, and not having proper and necessary exercise to promote the circulation of the fluids, and to forward the ordinary secretions, &c.; the legs swell and inflame, at last a running in the frog appears; and hence this discharge is said to be beneficial to the constitution, when, in fact, it is but too frequently brought on by a slothful neglect, and kept up by bad management. Fresh air and regular exercise are essentially necessary towards preserving

A a horses

horses in an active healthy state; for running thrushes, like other diseases to which pampered horses are subject, are not known in those countries where horses run at large in the fields; neither are they so frequently to be met with in the country amongst labouring horses, whose exercise is regular, and whose hoofs are much exposed to coolness and moisture, the natural state of the feet of horses.

With respect to the cure of running thrushes, I have already hinted, that in most cases, especially where it has been of long standing, affecting all the frogs more or less, it then becomes impracticable to eradicate it by any assistance from art; as, for instance, when it proceeds from contracted narrow heels in those feet which are said to be hoof-bound, it is then an attendant only on that disease; and therefore cannot be cured without removing the first cause, the nature of which I have already shown in page 166. and that it will only admit of some small degree of palliation. But, in those hoofs which are wide and open at the heels, where
the

the complaint is recent, one or both the fore-feet only being affected, and where there is reason to suspect that it proceeds from the use of concave or hollow shoes, or keeping the hoofs too hot, dry, and hard, the cure then may be compleated with ease and safety, by laying aside the use of concave shoes, washing the frogs clean after exercise, and dressing them with *Mel Egyptiacum*, made as follows.

Mel Egyptiacum.

¶ 11. Verdegriſ in fine powder, two ounces;

Honey ſix ounces;

Vinegar four ounces;

Boil them over a gentle fire till they have acquired a reddiſh colour.

Or a ſolution of blue vitriol.

Solution of vitriol.

¶ 12. Blue vitriol powdered, one ounce;

Water, one quart.

Keeping

Keeping the hoofs cool and moist. But, at the same time, recourse must be had to internal remedies by way of revulsion, as purging or diuretic medicines, bleeding being first premised; if the former is made choice of, twice or thrice will be sufficient, repeated at proper intervals; but, if the latter, which in my opinion is preferable, (for many reasons), they may be continued for some time with great safety, without losing one day's work of the horse,

In some cases, there is frequently not only a discharge of foetid matter from the clefts of the frogs, but, at the same time, a discharge of greasy like matter from the round protuberances of the heels, and the hollow of the pastern joints. It will be necessary, therefore, to make a distinction between the matter discharged in this case, which appears of a thick, white, clammy, or soapy consistence, and that running in the legs commonly termed a Grease, which is of a quite opposite quality; the latter by good management will admit of a thorough cure, whilst

whilst the former baffles all the power of medicine.

In horses of a gross habit of body, especially the heavy draught kind, running thrushes sometimes degenerate into what is commonly called a canker. In this case, the horny substance of the frog is soon thrown off, the fleshy parts grow to an immoderate size, the luxuriant substance or spongy flesh having a great number of papillae or tubercles, which Mr Gibson compares not improperly to collyflower, the colour only excepted, which is of a pale red, and sometimes variegated and tinged with blood, attended with a copious discharge of a thin ichorous foetid humour, having a most offensive smell. If its progress be not speedily stopt, the fleshy sole, from its vicinity, becomes likewise affected, the horny sole rots, decays, and falls off, the whole foot turns into a kind of quag or bog, (in warm weather full of maggots, which it is almost impossible to prevent, even with the most corrosive dressings); the tendons become
likewise

likewise affected, the bones carious, the hoof falls off, and the horse is rendered useless. To prevent these and the like consequences, as soon as a running thrush begins to show the least malignant disposition, proper means must be used to correct the habit of body, and to divert this discharge to some other outlet, either by purging or diuretic remedies, continued for some time, bleeding being first premised. As to external applications, the first thing necessary to be done, is to pare down the crust till it is lower than the fungus, or growth of the canker, and to remove any hard pieces of the hoof or sole, where-ever it presses upon the tender parts; the circular part of the crust should be surrounded and kept soft with an emollient poultice. For dressings, the mildest escharotic powders may be first tried, as the following.

℞ 13. Burnt Alum powdered, two ounces;
Blue Vitriol powdered, one ounce.

But, when it degenerates into the last species mentioned above affecting the fleshy sole,

sole, &c. the strongest corrosive applications will then be necessary, and sometimes hardly sufficient to keep down the luxuriance of the fungus. The caustic oils are found preferable, as Ol. Vitriol. Aqua Fortis, Butter of Antimony; either of these may be applied once every day, otherwise, if neglected dressing too long, or to every other day, which is the common practice, the great humidity and moisture issuing from the fungus, so weakens the force of the strongest oils, that they have little or no effect; when these sharp dressings seem to gain upon the canker, it may be dressed with equal parts of red precipitate and burnt alum pounded and mixt together, till such time as the new sole begins to grow; the purging or diuretic medicines being given at proper intervals till the cure is compleated.

Thus I have endeavoured to lay before the reader, the causes of diseases in the feet of horses; and, at the same time, pointed out the means by which many of them may in a great measure be prevented, or at least rendered less hurtful.

It

It will perhaps be necessary to add a few observations on what are called *False-quarters* and *Sand-cracks* in the hoofs; likewise some remarks upon horses cutting their legs in travelling; the former being the effects of some antecedent wound or bruise, though commonly classed amongst the number of diseases of the feet; the latter frequently the effect of injudicious shoeing.

CHAP.

C H A P. IX.

False-Quarter.

WHAT is commonly called a False-quarter in the foot of an horse is a cleft or chink in the side or quarter of the hoof, running in a slanting direction with the horny fibres of the hoof, from the coronet to its basis, by which the horny substance of the crust is divided; one part of the hoof being in a manner detached from the other, and rendered unable to sustain its portion or share of the weight of the limb, &c. and hence the name of False-quarter; for, when the horse sets his foot on the ground, the chink widens; but, when it is lifted up, the hardened edges of the divided hoof take in between them the tender and soft parts, and squeezes it so as to occasion frequent bleeding at the chink, and is frequently attended with inflammation, a discharge of matter, and, of course, lameness.

B b

This

This complaint, notwithstanding the different accounts commonly given as the cause of it, is in fact the effect of a deep wound or bruise upon the coronet, by which the continuity of the parts has been intirely broke off; for we always find that, when the horny fibres are divided at their roots, they never unite or grow up as before, but leave a blemish, more or less, in proportion to the size and deepness of such wounds, &c. We have many instances of this, even in the human body; for, when a wound happens at the roots of the nails, whether in the fingers or toes, it occasions a blemish, which continues to grow in the same manner afterwards. Hence, it will be evident that no radical cure can possibly take place; but we may so far palliate the complaint as to render the horse something useful, by using a shoe of such a construction as will support the weight of the limb, &c. without resting or pressing too much upon the weakened quarter; for which purpose, a round, or what is called a barred shoe, will be most proper. The surface of the hoof on and near the diseased

fed part may be cut down lower than the surface of the crust upon which the shoe is to rest; or, if the hoof will not admit of being cut down, the shoe may be raised up from the weak quarter. Either of these means will remove the weight of the body from the diseased part, and the horse will go sounder.

But, as sand and gravel is easily admitted into the chink, or crack, where being accumulated and pent up, it irritates and inflames the parts, whereby matter is formed underneath the hoof, which causes lameness, and which not unfrequently breaks out at the coronet, producing the most inveterate ulcers, which become extremely difficult to heal, on account of the sinus or fistulae branching out in different directions underneath the hoof. Therefore, horses with this defect should be carefully observed; and, when the thick hardened edges of the chinks or crack grow too high, by which it is so much the deeper, and, of course, lodges the greater quantity of sand, &c. these edges should

should be rasped, or pared with a crooked knife, till the seam disappears. But, wherever there remains a blackness, or appearance of gravel, that part must be traced farther; always observing, if possible, to avoid drawing blood. The chink or crack thus made smooth and equal, no sand or gravel can lodge in it; and, as the parts will be tender, it will be necessary to apply an emollient poultice for some days, till the tenderness wear off. If the inflammation has been great, and matter formed in the crack, or the parts wounded by the knife, in cutting its hardened edges, proud flesh may rise, and jet out. In this case, the hard parts of the hoof near it are to be removed, a digestive poultice applied, and, when the inflammation is abated, the proud flesh may be touched with the following corrosive powder:

℞ Blue Vitriol burnt, 2 drams;
Corrosive Sublimate, 1 dram;
Rubbed into powder.

A

A Sand-crack is of much the same nature with a false-quarter, only they run more frequently in an horizontal direction than the latter, on the outside or surface of the crust: They are generally the effect of slight or superficial wounds upon the coronet, and grow gradually downwards towards the basis of the hoof, and at last are cut or rasped off in the shoeing; when they occasion lameness from lodging sand or gravel, they must be treated in the same manner as already mentioned for false-quarters.

Horses frequently cut their legs both before and behind, by striking or knocking the hoof when trotting, &c. against the opposite leg, whereby a wound is made, which is attended with an inflammation, swelling, &c. and of course lameness. The parts commonly wounded from cutting in the fore-legs, are the prominent and back part of the fetlock joint, and under the knee joint on the inside of the leg. The former is most common; the latter only happens to those horses who raise their feet high
in

198 FALSE-QUARTER.

in trotting; and, as such horses generally go fast, this last species of cutting is distinguished by the name of the Swift or Speedy Cut.

In the hind-legs, horses cut themselves upon the prominent part of the fetlock-joint, and sometimes, especially those who move their legs too low, cut upon the coronet. But, whether they cut before or behind, it commonly proceeds from some of the following causes.

1st, Injudicious shoeing, under which may be included, the hoofs being suffered to grow too large and broad, the shoe projecting over the inside edge of the hoof, the clenches or rivets of the nails rising above the surface of the crust.

There are a great variety of shoes recommended for preventing this complaint of different constructions; but the most common are those that are made thick upon the inside heel. Others have a border or margin

gin turned up upon the inside of the shoe's rim, commonly called a Feather, which raises the inside of the hoof considerably higher from the ground than the outside. Either of these shoes may be of use to a dealer, in order to make a wry-footed horse appear to stand straight upon his limbs, but can have no effect upon a horse's manner of moving his legs, especially at the time when the foot is raised from the ground, and passing by the other leg, so as to prevent him from cutting. The reason why this method of shoeing seems to succeed, especially in the hind-feet, is this, when the shoe is made thick upon the inside heel, which part commonly strikes the opposite leg, the-shoe nails are removed to a considerable distance forward from the thick part of the shoe, which, at the same time, is kept much within the circle of the hoof; and, on that account, it becomes impossible that the shoe should touch the opposite leg. But, to show that this raising of the inside quarter or heel, by a thickness of iron in the shoe, is not necessary to prevent horses from cutting,

ting, I have frequently caused the heel of the shoe to be made thinner than common, and, by keeping it within the hoof, answered equally as well as the former. I have likewise caused the shoe to be cut in the middle of the quarter, whereby the hoof at the heel was left quite bare, which answered the purpose so much the better, as the foot was the less loaded with the additional weight of superfluous iron.

2d, The great weight of the concave shoes commonly used, is likewise another cause why horses, that in other respects move well upon their legs, do frequently cut and wound themselves; and to this we may add, the great length of the hoof at the toe, especially in the fore-feet, which is allowed frequently to grow to an unnatural size. I have already observed, that a great load of iron is by no means necessary in a horse's shoe; on the contrary, it becomes a great disadvantage; for a flat one that is properly constructed, and well wrought, that is, well hammered, will wear as long as a concave or hollow shoe

shoe that is almost double the weight of the former. This, at first view, will perhaps appear a paradox ; but, nevertheless, it is a fact ; for, as the round or outward surface of a concave shoe is the only part that touches the ground, and is liable to be wore, it soon grows thin, and yields to the pressure from the weight of the body ; and therefore must be renewed before the other parts of it are hardly touched, and but little reduced in its original weight. But the surface of a flat shoe, resting equally upon the ground, will remain firm upon the hoof, and be sufficiently strong to support the weight of the body till it wears very thin.

When horses cut or wound themselves immediately under the knee-joint, this I have observed is called the Swift or Speedy Cut, and is occasioned by raising the feet high in trotting, whereby the inside toe or quarter of the hoof strikes against the opposite leg. This is easily prevented, by making the shoe straight, and placing it considerably within the hoof at the part where

C c

the

the hoof strikes the other leg, observing that no nails are to be put in that part of the shoe which is kept so much within the hoof, otherwise they must immediately plunge in to the quick.

3d, When cutting proceeds from a natural defect, that is, a wrong position of the foot upon the leg-bones, whereby the toes are turned too much outward, or too much inward; at the same time, if the horse crosses his legs much in trotting, in this case there is no preventing his cutting altogether, though it may be palliated. Such horses are by no means fit for journey riding, being generally addicted both to cutting and stumbling.

In the *last* place, it may proceed from fatigue or weakness; this happens frequently, even to those horses that deal their legs well (as the phrase is), especially in young horses; but they soon leave it off when they acquire more strength, and are accustomed to their work; most people must have experienced

rienced this in themselves when boys, as they at that age are very ready to knock their ancles with the heel of the opposite shoe, which custom wears off as they grow strong. Upon the whole, the best general rule that can be laid down for preventing horses from cutting their legs, is to keep their hoofs round and short at the toe, and from growing too large and broad, to observe that the shoe does not project over the inside edge of the hoof, that the clenches or rivets of the nails on the outer surface of the crust are smooth, and above all, that the shoe be made light, well worked, and properly proportioned to the size of the foot.

AN

A N

Explanation of the PLATE.

FIGURE I.

REPRESENTS an upper and side-view of the hoof of a horse, with its inner cavity.

A. The toe.

B. B. The heels.

C. The frog, with its cavities.

FIG. II. Shews the under-part of the hoof, containing the sole, frog, and bars.

A. A. The crust.

B. B. The sole.

C. C. The bars, or binders.

E. E. The heels.

D. The longitudinal cleft in the middle of the frog.

FIG. III. Shews the under part of the coffin-bone.

A. The round part, or toe.

B. B.

- B. B. Its proceffes, or heels.
- C. The infertion of the flexor-tendon.
- D. D. Holes for the paffage of blood-veffels.

FIG. IV. Shews an upper and fide-view of the coffin-bone.

- A. Its round part, or toe.
- B. B. Its proceffes, or heels.
- C. The cavity of the joint.
- D. D. The joining of the cartilages on each fide of the joint.

FIG. V. Shews the back part of the coronary bones.

- A. The ball which enters the cavity of the coffin-bone.
- B. The focket which receives the paftern-bone.

FIG. VI. Shews the fore part of the coronary-bone.

- A. The coffin-joint.
- B. The paftern-joint.

FIG.

FIG. VII. Shews the nut, or shuttle-bone.

FIG. VIII. Shews that side of the nut-bone which is placed next the joint.

A. The longitudinal notch which rests upon the coffin-bone.

FIG. IX. Represents a back view of the bones of the foot, joined in their proper places.

A. The pastern-bone.

B. The coronary-bone.

C. The nut or shuttle-bone, upon the articulation of the coronary-bone, with the coffin-bone.

D. The coffin-bone.

E. E. The processes.

F. F. A round notch or groove for the passage of a large blood-vessel on each side of the bone.

G. G. The holes for the passage of blood-vessels into the substance of the bone.

FIG. X. Represents the common concave shoe, with its round surface, which rests upon the ground.

A. A.

A. A. The washes.

B. B. The cramps or caukers upon the heels.

FIG. XI. Shews that side of the common concave shoe which is placed next the foot.

FIG. XII. Represents the form of the shoe that is recommended, with its flat surface.

FIG. XIII. shews that side which is placed next to the foot.

A. A. The narrow rim which rests upon the crust.

F I N I S.

